

MAR 7 1945

THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS



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**Soldier Settlement Policy: The Oldest Rehabilitation
Prospectus**

Robert England

**Localization of Railway Facilities in Metropolitan
Centers as Typified by Chicago**

Harold M. Mayer

Notes on the Recent Decline in Home Ownership

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Amortization of Mortgage Premiums

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VOLUME XX, NUMBER 4

NOVEMBER, 1944

PRICE \$1.50 A COPY

SOCIAL RESEARCH

An international quarterly, founded in 1934, published by the
GRADUATE FACULTY OF POLITICAL AND SOCIAL SCIENCE
of the New School for Social Research, New York

Contents for November 1944 (Volume XI, Number 4)

What Is Public Opinion?	KURT RIEZLER
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BOOK REVIEWS

Published in February, May, September and November

Subscription \$3 a year (Foreign \$3.50)—Single copies 75 cents

66 WEST 12TH STREET, NEW YORK 11, N. Y.

JOURNAL OF FARM ECONOMICS

Editor: Warren C. Waite

University of Minnesota

University Farm, St. Paul, Minnesota

Volume XXVI, November 1944, Number 4

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This Journal, a quarterly, contains in addition, notes, reviews of books, and a list of recent publications and is published in February, May, August, November by the American Farm Economic Association. Yearly subscription \$5.00.

Secretary-Treasurer: ASHER HOBSON

**DEPARTMENT OF AGRICULTURAL ECONOMICS
UNIVERSITY OF WISCONSIN, MADISON 6, WISCONSIN**

THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

CONTENTS

NOVEMBER, 1944

Major Articles

- Soldier Settlement: Revising the Oldest Rehabilitation Prospectus.....ROBERT ENGLAND..... 285
- Localization of Railway Facilities in Metropolitan Centers as Typified by Chicago.....HAROLD M. MAYER..... 299
- Amortization of Mortgage Premiums.....RAY B. WESTERFIELD..... 316
- Economics of Soil Conservation:
- II. Farm Business Adjustments.....E. C. WEITZELL..... 330
- Adjusting Wheat Acreage in the Northern Great Plains to Wartime Demand.....RALPH E. WARD..... 344

Reports and Comments

- The Creed of a Great Public Servant.....E. W. MOREHOUSE..... 361
- Mapping Chicago's Industrial and Commercial Land Use.....KINGSLEY S. HALL, HAROLD M. MAYER and ROBERT L. WRIGLEY, JR..... 365
- Farms and Homes for Veterans.....ROSALAND TOUGH and RUTH G. WEINTRAUB..... 371
- Notes on the Recent Decline in Home Ownership.....RICHARD U. RATCLIFF..... 373
- Public Utility Financing in the Third Quarter of 1944.....W. H. EVANS and O. P. DEUEL 378

Book Reviews

- Cities of Latin America (Francis Violich).....Jacob Crane..... 381
- Financial Accounting (George O. May).....George R. Husband..... 382
- Airports and the Courts (Charles S. Rhyne).....Henry R. Trombrower..... 383
- Understanding New Zealand (Frederick L. W. Wood) ..Arthur C. Bunce..... 383
- Palestine, Land of Promise (Walter Clay Lowdermilk).....Charles S. Ascher..... 384
- The Field Seed Industry in the United States (Frank Victor Beck).....Paul A. Eke..... 385
- State Taxation of Metallic Deposits (Warren A. Roberts) ..Harold M. Groves..... 386
- A Development Plan for Puerto Rico (National Resources Planning Board).....Hugh H. Wooten..... 387

PUBLISHED QUARTERLY BY THE UNIVERSITY OF WISCONSIN
DURING THE MONTHS OF FEBRUARY, MAY, AUGUST, AND NOVEMBER

Publication office:

Sterling Hall, University of Wisconsin, Madison 6, Wisconsin

The contents of the *Journal* are indexed in the *Industrial Arts Index*.

Entered as second-class matter, January 3, 1938, at the post-office at Madison, Wis., under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized October 12, 1922. Printed in the United States of America.

Subscription Rates: \$5 a year; \$1.50 a copy. Remittances may be made by personal checks, drafts, post-office or express money orders payable to the Journal of Land & Public Utility Economics.

Agents of the *Journal* in Great Britain, B. F. Stevens & Brown,

Ltd., 28-30 Little Russell St., British Museum, London, W. C. 1.

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THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

NOVEMBER
1944



VOLUME XX
NUMBER 4

Soldier Settlement: Revising the Oldest Rehabilitation Prospectus

By ROBERT ENGLAND*

THE soldi, given to soldiers in ancient Rome as their pay, is linked at least etymologically with the word for "cereal." In early ages every Roman had been a landowner and every landowner a soldier, serving without pay. To fight was as essential as to plough. By the fourth century the cash nexus established the legions as commercial; the wealthy withdrew from service and the poor saw it as a trade. But Rome in its earlier history had been accustomed to find its soldiers from the land; and it had also rewarded its soldiers by settling them on land.¹

For years the Roman State fostered small holdings, established rural credit schemes—the six per cent return being used as a bonus to parents. But imported grain, large slave plantations, the growing burden of providing bread and circuses to urban rabble unfitted for military service, decline in soil fertility, and constant drafting of soldier settlers for new wars destroyed not only the

bases of a sound agricultural economy but also of an intelligible defense system—a militia from the land.

"What do you do with old soldiers?" was answered in ancient Rome by land settlement until decay began. Then the words of Gracchus in 133 B. C. (later to be found in another setting in the New Testament) ring like a speech at a revolutionary Legion branch meeting in 1919:

"The wild animals that range over Italy have a hole, and each of them has its lair and nest, but the men who fight and die for Italy have no part or lot in anything but the air and the sunlight . . . It is for the sake of other men's wealth and luxury that these go to the wars and give their lives. They are called the lords of the world, and they have not a single clod of earth to call their own."²

The failure to re-establish its soldiers successfully presaged the fall of Rome.

In mediaeval times the seigniorial system of land tenure was based on a

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¹ Arnold J. Toynbee, *A Study of History*, Vol. III, p. 170 et seq., p. 266; Vol. IV, pp. 49, 572.

² Tiberius Gracchus, quoted by Plutarch, *Lives of the Gracchi*, chap. 9.

military pattern and even disabled soldiers often found solace and a haven in the monasteries which were then the agricultural experimental farms of the time.

In North America, land grants and agricultural settlement became the characteristic method of rewarding soldiers. As early as 1679 Virginia made such grants. In Canada, France sought to establish a new empire by settling disbanded troops on seigniories along the St. Lawrence. These soldiers were not discharged. They were obligated as *censitaires* to follow their *seigneur* in battle as well as provide certain services in peace. The whole government and structure of New France was military in character based on land tenure.³ In Nova Scotia, British soldiers were settled as early as 1753.⁴ After the conquest of Quebec several regiments of the British Army were given land. Indeed British policy saw the settlement of ex-soldiers as a guarantee of security.

Washington as a landowner staked out a 200,000-acre tract for 200 veterans,⁵ for it was realized that the land then was the main solvent for the disbanding Continental armies which, of all veterans, were the least uprooted. Washington gave the soldiers the option of staying in camp until their enlistments were up, but he knew that they wanted to go home. Each took home his musket, powder horn, wooden canteen, knapsack, uniform and four months' pay in promissory notes worth only two shillings to the pound. In 1811-12 a special military tract was set aside between

Illinois and Mississippi. By 1855 the veteran of the Revolution or his heirs could have 160 acres of domain, but speculation came into the picture and in 1858 the warrants were stopped.

In Canada, land grants to British soldiers who had fought in the American Revolution, the Napoleonic Wars or in the War of 1812-14 became the main settlement activity of the first half of the 19th century, and grants were made in accordance with rank held.⁶ The province of Manitoba came to be a province largely as the result of interaction of military power, and British Columbia owes much to the work of the Royal Engineers and a strong military tradition.⁷ In Ontario the influx of non-military settlers, the growth of democratic sentiment, the influence of United States, and the struggle against those who desired to develop a landed aristocracy finally led to the more democratic homestead grant system. Therefore, the veterans of the Red River (1870) and Northwest Rebellion (1885), and of the South Africa War (1900) were rewarded by homestead grants. In the case of the South Africa veterans, transferable scrip was issued.⁸ Most of this scrip was sold and was treated as a bonus. Thus, when World War I demobilization suddenly came, land settlement once again was an important item on the agenda of civil re-establishment in Canada.

Meantime, in United States, a great change had come over economic thought with regard to land settlement, and it will be seen to have affected policy. The "G.I. Bill of Rights" not only relegates land settlement to a minor place

³ Francis Parkman, *The Old Regime in Canada; France and England in North America*, Part IV (revised ed.) (Boston: Little Brown & Co., 1920), pp. 448, 449.

⁴ *Public Archives of Canada, N.S.A.*, Vol. LXIV (Halifax: May 11, 1760), Chas. Lawrence to Lords Commissioners of Trade and Plantations, pp. 147-50.

⁵ Cf., Dixon Wecter, *When Johnny Comes Marching Home* (New York: Houghton Mifflin Co., 1944) for history of homecoming Revolutionary and Civil War armies.

⁶ W. S. Lighthall, *Canada and its Provinces*, The Province of Quebec, English Settlement in Quebec, 148 et al.

⁷ A. S. Morton, *A History of the Canadian West to 1870-71* (Toronto: Thos. Nelson & Sons, Ltd.), pp. 581, 592, 664.

⁸ Lt.-Col. R. Wolfenden, I.S.O., V.D., "The Royal Engineers and Their Work in British Columbia," reported in *The Victoria Daily Colonist*, Nov. 22, 1900.

⁸ 7-8 Edw. VII, C. 67, Statutes of Canada.

in the program of civil re-establishment but by its terms does not specifically encourage the veteran to engage in agriculture. On the other hand, Canada has developed an entirely new approach to the question. It is useful, therefore, to compare the story of settlement twenty-five years ago with the proposals for the future in the two countries:

I. United States

Prior to demobilization in 1919, the Lane plan of soldier settlement received the most attention. It was realized by the planners that the land had played a primary role in veteran rehabilitation in the past. They recalled that the fertile soil of the Northwest Territory, Kentucky and Tennessee helped the resettlement of Washington's Army and that the Trans-Mississippi lands rendered a similar service to Civil War veterans. So, land settlement seemed an inevitable and an appropriate measure for World War I veterans. However, the best of the public domain had been distributed, and most of the remaining available tillable land was of doubtful value. Some timber lands could be cleared and semi-arid lands irrigated, but most of these areas were within control of the states, and not of the federal authority. Moreover, it was abundantly clear that the homestead form of settlement was unsuited to soldier settlement as the failures were well known. Nevertheless, in February 1919, preferences in homestead entry were accorded ex-service men.⁹ Interest was great, and a Land Settlement Congress for soldiers, sailors and marines was held at Salt Lake City in February 1919. This Congress included delegates from Utah, California, Colorado, Wyoming, Nevada,

Arizona, and New Mexico, which together had over 178 million acres of public domain land, much of it unsurveyed. There was much discussion of reclaiming four million acres of Colorado River basin lands, and of irrigation of two million acres by a dam at American Falls, Idaho. The lieutenant-governor of Montana advocated the issuance of scrip as had been done to the veterans of the War of 1812 and to those of the Mexican War.

In Washington, Franklin K. Lane, Secretary of the Interior, proposed a hundred-million-dollar National Soldier Settlement Fund to be used by the Reclamation Service of the Department of Interior for the reclamation of arid lands and the preparation of other lands, with a view to providing veterans with tillable soil near markets. Drainage, irrigation, tree-stump removal, road building, improvements, purchase of private holdings, stock and equipment were to be met from the fund. Surveys were to be conducted to determine available land, areas of cut-over territory requiring clearing, and arid land needing irrigation. It was hoped that states and private owners would co-operate, and the Department of Agriculture and Federal Farm Loan Board were to check on values of land offered to the administration for purchase.

This plan did not propose any subsidy by the government. The settler was to buy reclaimed land and to repay cost of fixed charges by deferred payments amortized over a period of not more than 45 years with a rate of interest of 4½ per cent per annum. Ex-soldiers were to be used in the reclamation work, and in this way were to become acquainted with the area and to save from their earnings money to assist them make initial payments on their properties. Community or group

⁹ James R. Mock and Evangeline Thurber, *Report on Demobilization* (University of Oklahoma Press, 1944), pp. 80, 101 et seq.

settlement was to be aimed at in order to avoid isolated farm units; and the size of the farm was to conform to the type of enterprise, varying from 160 acres for mixed farming operation to 5 or 15 for truck or fruit farming.

The Secretary of Labor, William B. Wilson, advanced a different plan under which farms established on reclaimed lands were to be leased for life to settlers and on easy terms. This scheme was designed to discourage speculative land selling as it had been reported that landowners were asking prices of four and five times the assessed value of farm properties.¹⁰

Criticism of the proposals defeated them in Congress. The epitaph was written by the *Soldiers, Sailors and Marines Weekly News* which declared that the doughboy would be the best judge of his own needs after he obtained the cash bonus of \$300 proposed by the Baer-Gronna Bill, and that it would be foolish to offer farms to men who knew and cared nothing about farming.

Meantime, between 1917 and 1923, thirteen states established colonization policies, but seven of these plans assumed federal aid and, when this was not forthcoming, the legislation lapsed.¹¹ The state of California inaugurated projects at Durham and Delhi but they included only 14,600 acres, were unsuccessful, and in 1928 the state liquidated its holdings losing several million dollars. Oregon, which then was thought to have seven million acres of undeveloped agricultural lands, proposed a constitutional amendment to raise a bond issue of which two million dollars would be spent on land settlement. Popular vote defeated the amendment, and Oregon contented

itself with three farm units for demonstration purposes.

Arizona improved a thousand acres and sold some of it to forty soldiers but in eight years the appropriation was exhausted and no money was repaid to the state. The state of Washington tried unsuccessfully to colonize a one-hundred-unit project. Minnesota's land improvement board prepared 24,000 acres for farming, but after six years less than a third had been sold and reversions were common; the state lost nearly all its hundred-thousand-dollar "revolving fund." South Dakota and other states made half-hearted and unsuccessful efforts to develop land settlement policies.

In nearly all cases it was conceded that the urban attraction, the lack of amenities, the pioneering obstacles in cultivating cut-over or reclaimed lands, the meagre rural standard of living, forbidding prospects, and the unsatisfactory prices for farm products contributed to the disillusionment of settlers and to their desertion of the ventures. The federal government confined its soldier settlement to the disabled, providing them with vocational training, tools and equipment. In Minnesota, it is claimed that three-quarters of these disabled settler veterans gave up within ten years.

By 1930 there was no soldier settlement project operating in United States. Interest in settlement reawakened in 1933 when land settlement began to be thought of as a means of mitigating the worst features of urban unemployment. Under the Subsistence Homestead Act, 1933, forty-five projects, mainly part-time farming, were approved; but these projects were designed for unemployed and not specifically for veterans.

The Resettlement Administration (RA) and its successor in 1937, the

¹⁰ *Monthly Labor Review of Bureau of Labor Statistics*, U.S. Department of Labor, "Public Attitude Towards Ex-Service Men After World War I," December 1943, p. 13.

¹¹ *Veteran Readjustment in Agriculture*, Report of Special Committee to the Governor of the State of Wisconsin, p. 5.

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¹² *Secur
Planning*

Farm Security Administration (FSA), set up one hundred and fifty settlement projects. Many were later transferred to the Bureau of Agricultural Economics and, in 1938, to the Soil Conservation Service. The RA and FSA were interested in co-operative buying and selling, debt adjustment policies, provision of medical services, labor camps, and in 1942 such New Deal attempts led to an attack on FSA in Congress. The Farmers' Home Corporation now came into the picture. Thus, frequent changes in administration combined with the novelty of some of the policies, the type of settler and small acreage in holdings to defeat the hopes of the promoters. Congress was skeptical of the projects, and no continuity of administration or consistency in policy was possible.

Yet one in six farmers has, or had an FSA loan and since 1941 collections have exceeded loans. The Federal Security Administration of the Department of Agriculture is interested not only in the rural rehabilitation program (begun under the Federal Emergency Administration and transferred to the Resettlement Administration), in the miscellaneous resettlement projects (begun by the Division of Subsistence Homesteads of the Department of the Interior and the Federal Emergency Relief Administration) but it also administers the Bankhead-Jones Farm Tenant Act under which individuals are aided in the purchase of going farms. The National Resources Planning Board, in its Report, *Security, Work and Relief Policies*,¹² praises the educational aspects of the rehabilitation program as developed in farm and home management supervision; and, though no estimate could yet be made as to the ability of the clients to maintain economic independence, it does

note the expectation by the FSA of complete repayment of eighty per cent of all loans.

Notwithstanding favorable comment, criticism of the educational and paternalistic aspects of the program has developed. The tendency of the newer federal loaning policies is to refrain from supervision and welfare work of the FSA pattern and to emphasize self-reliance. The proposed new Cooley Bill gives preference to veterans in the making of government loans. Under the proposed tenant-purchase administration, the average value of farms in the county would be used for determining the possible size of loans. This provision is important since, under the "G.I. Bill of Rights," veterans are eligible to borrow under the Bankhead-Jones Farm-Tenant Act. The average tenant-purchase farm, it is worth noting, already has been around \$7,000; and values are rising. Although farm real estate values have risen 36 per cent since 1939, they are still below those of 1929. And 1929 values were 32 per cent below the land prices of 1920.

With this recent settlement history and these facts in mind we come to the so-called "G.I. Bill of Rights,"¹³ Title III of which provides for loans to veterans, who have agricultural experience and ability, to assist them in the purchase or improvement of farms. The guarantee of the Veterans' Administration is limited to 50 per cent of the total needed to purchase the property, but the sum guaranteed will in no case exceed \$2,000. The Act reserves to the government "the right to be subrogated to the lien rights of the holder of the obligation which is guaranteed." The veterans' administrator may approve the loan if it is found that the property is

¹² *Security, Work and Relief Policies*, National Resources Planning Board, (Washington: 1942), pp. 79 et seq., 281-85.

¹³ Service Men's Readjustment Act of 1944 (Pub. No. 346, 78th Congress, June 22, 1944).

reasonably valued, designed to enable farming to be efficiently conducted, and if the veteran is experienced and seems likely to succeed.

There is thus laid upon the administration the extremely difficult task of approving or rejecting loans upon farm properties during the next five years when farm values are likely to appreciate rapidly. To secure the total loan of \$2,000, the veteran really needs resources of a further \$2,000; and, though he is excused interest the first year, the rate is four per cent per annum. It is a moot point whether it would be better for him to seek his loan under the Bankhead-Jones Farm-Tenant Act for which the "G.I. Bill of Rights" makes him eligible.

The loan assistance in respect of settler veterans is included in Title III, "Loans for the Purchase or Construction of Homes, Farms and Business Property," and the lack of specific provision appears to indicate that Congress still had in mind the subsistence settlement of depression days as an alternative to unemployment or some forms of small-scale agriculture such as exist in the southern states. It is difficult to see how a loan of \$2,000, the maximum under the Act, would cover re-establishment on farms in the Middle West, the Atlantic states, or in California. As there are about a million three hundred thousand men in the United States Forces coming from rural areas, there will be little inducement under the Act for them to return to the land. Why is this so?

This policy accords with much of the economic thought of the past decade, which inclines to emphasize the increasing productivity of agriculture, its improving technology, its increased output per head of labor force, the greater availability of scientific aid and encouragement, the economies of increasing specialization and intensive cultiva-

tion, and modern methods of chilling, refrigerating, storing, transporting, and preserving foods. It is claimed that agriculture tends to increase rather than to decrease its production during a depression, and that the surpluses are due to too large a working force.

Increasing mechanization and commercialization of agriculture are inevitable, and attempts must be made to rationalize agricultural production schedules to avoid gluts. Planners and administrators find it difficult to synchronize these efforts with an unstable cultivated area and a growing body of settlers. So, there is a feeling that settlement projects should be held down to the resettlement of farmers who ought to abandon unsuitable areas, thus keeping down the number of entrants into the industry. Some economists would then like to adjust the production program of agriculture to the demand for farm products, on a sliding scale. Others view the steady output of agriculture through good and bad times as a stabilizing factor and as an asset rather than as a liability. The former favor production control measures of the AAA type, the latter would develop the present wartime price programs, avoiding any curtailment of food, fodder, fibre and animal production.

Both groups of agricultural economists and administrators are concerned with the trend of consumption and note the declining rate of population growth in Western countries which, it is argued, does not accord with Malthusian concepts. Furthermore, the age distribution of the population shows relatively older groupings, and this means less is eaten than by growing youth. Then it is claimed that, though incomes may rise, the relative percentage spent for food declines and that, as people become richer and agriculture more efficient,

the non-elastic character of food production develops crises of surpluses of agricultural commodities.

This school of economic thought also points to the extraordinary wartime agricultural production in North America despite the drop in the labor force. The farm population in United States, in April 1940, was 30.2 million; in January 1944, it was five million less; and about two million of those listed as rural were already in war industry but had not changed their residence classification. The war has accentuated the drift from the land. Since 1920 the proportion of the working population in agriculture dropped from 37 to 15 per cent in the United States; and from 40 to 22 per cent in Canada. Yet there still appears to be over-population in the countryside, since the present labor force can produce more than the larger prewar working population. Land it is argued, is not the factor it used to be in agricultural production. When the AAA curtailed acreage devoted to tobacco, corn and wheat, it was found that farmers, by selecting acreage, produced more from smaller acreage and showed great ingenuity in developing substitute crops, thus increasing the aggregate of production. This group of economists then states the problem of agriculture as that of too many farmers.

In consequence, they reach the conclusion of Professor T. W. Schultz:

"Let us not repeat the mistake which many countries made after World War I, when governments undertook programs designed to put large numbers of returning soldiers on the land . . . Few of the many open spaces which still exist in countries like Canada and the United States are equivalent to economic opportunity. Agriculture is a shrinking segment of the economy."¹⁴

¹⁴Theodore W. Schultz, "Conditions for Economic Progress in Agriculture," *The Canadian Journal of Economics and Political Science*, August 1944, p. 298 et seq.

Such a conclusion omits the adequate consideration of other methods of land utilization than commercial farming. Thus, the argument as to commercial agriculture is used to blanket all forms of return to the land as a mistake. Even in regard to the segment of commercial agriculture — allegedly unremunerative and declining—there is wastage to repair as well as room for the initiative and enterprise of new entrants. Surely it would be far fetched to attempt to apply a trade union policy of shutting out from agriculture those who derive from agriculture and are now serving in the Armed Forces. The government provides, in the "G.I. Bill of Rights," a measure of aid for veterans wishing to return to the farm, but even this aid would appear to be deprecated by Professor Schultz who, in suggesting that settlement be avoided, would refuse opportunities of return to the land of any ex-servicemen who will know little of any other occupation, at a time when we may have to revise our views as to living and making a living on the land. Half the world is now starving; and though Malthusian trends may appear to have little meaning in North America, no one who has struggled with the pests and hazards incident to agriculture and horticulture can minimize the risks of food production and the menace of declining fertility on the one hand, and on the other, certain obvious nutritional deficiencies in the diet of many urban and not a few of our rural people.

Land need not be devoted solely to food production, however. Its utilization for the growing of crops for industrial purposes has brought the new word "chemurgy" into the vocabulary of agronomists and industrial chemists. It would be folly to count too much on the proposed production of raw materials for industry, but alongside this there is a

need for conservation measures of the land and water resources and of their fauna. Wild fowl sanctuaries, fish and game areas, parks, recreation centres, flying fields, re-afforestation projects, community pastures, summer resorts, camps, service stations, the ever-widening rings around towns of truck farms and small holdings, suburban development and roads will all need land. We are to live in an unsettled world and, if our democracy is to survive, its citizens must be prepared to spend some time in training to defend our way of life. No longer can that be done on a barrack-square, squad-drilling. It requires space for the mechanized equipment, large camps, tank and artillery ranges, long runways for military air-fields. Our factories, particularly our munition plants, must always be located some distance from large urban centres, and the tendency will be to move them from the Atlantic and Pacific seaboard and into the heart of the continent. We are not defeated peoples compelled to dismantle the great mechanism instrumental to our victory.

Moreover, the present production records of American and Canadian agriculture are being made by a labor force increasingly older and very much overworked with arrears of depreciation in farm machinery and buildings that will require capital and labor to make up. The age group over 65 in United States has increased 30 per cent from 1920 to 1940.¹⁵ No one can be satisfied with the amenities and opportunities of rural life. City and town have robbed the countryside of its service personnel, its skilled tradesmen, its craftsmen, and its professional men. Teachers, preachers, doctors, carpenters, electricians, blacksmiths, plumbers—why should there not

be opportunities for them to live in rural communities again, and to live on the land if not by it? Rural electricity, roads, automobiles, telephones, medical services, community activities—television, film circuits, educational opportunity, better farm machinery—these things could make rural living more attractive than mean streets, hard pavements, and the regimentation of industrial life.

Town planning experts know that our great cities with their heavy traffic in narrow causeways, their unplanned growth, their increasingly difficult mass transportation problem, their growing overhead cost of servicing and provisioning of their populations, their tax and police burdens are imposing on their industries, business establishments and citizens handicaps of time lost, wear and tear in commuting, in traffic jams, and in inconvenience that are bad enough in peace, but in war are, even without the risk of bombing, almost beyond human endurance for long periods. Many sought industrial life for quick reward and economic advantage. But there is a change here. Superannuation for sixty-year old farmers and children's allowances are on the way, and will do much to reduce the amount of work now done by old and young on the farm, and will provide opportunity for those of working age. Young children, women, invalids, and old people now do far more work on farms than they will do when more adequate social security measures are applied to the rural population. Such plans, until recently, failed to include the agricultural worker. Industry has long had its pension and welfare schemes, and long held an advantage over agricultural pursuits, but there are signs that the size and complexity of urban life are already reducing the handicaps of the rural resident.

¹⁵ *The Problems of a Changing Population*, National Resources Committee (Washington: May 1938), p. 32 et seq.

Those, therefore, who advocate that veterans of the present war with its deprivations and hardships should be denied an adequate plan of rural settlement on a scale designed to ensure self-reliance accept a heavy responsibility in thus restricting the area of their rehabilitation to urban occupations and urban life. There are those who will accept the music-hall song version of the problem in 1919: "How are you going to keep them down on the farm after they have seen *Parce*?" But there are hundreds of thousands who will be going home to farms, and will enjoy once again the hunting, the fishing and, indeed, the ordinary tasks of farm life. Many will be glad that the "G.I. Bill of Rights" offers them a form of opportunity, and the real question is not whether this aid should have been provided, but whether it should go farther. In Canada the proposals go much beyond that, and as they reflect a new approach to the whole question they merit examination in the light of what has been noted.

II. Canada

It is well to remember that Canada usually reflects United States opinion and that the school of American economic thought already mentioned has its counterpart in Canada. Many studies have emphasized the diminishing area of fertile land, the doubtfulness of settlement on sub-marginal areas of grey wooded soils, the virtual disappearance of the homestead, the penalties of cultivation of semi-arid belts in the prairie region, the cost of social services in scattered communities, and the alleged correlation between immigration and emigration. Usually the moral is to close the doors against further European immigration and to seek apologia for this restrictive policy in the alleged lack

of economic opportunity rather than in the social inconvenience of new citizens from Central Europe. Political opportunism would suggest that arguments in favor of restriction of immigrant settlers would meet with the approval of Catholic French-Canadians in Quebec, accord with traditional trade union policy, and would injure only the foreigner. But the use of economic criteria gives a color of objectivity lacking in the sociological assimilation criteria which badly concealed racial and social prejudice, economic advantage and even religious predilection.

However, no one has cared to take the line that areas of good soil were exhausted, or to deny that much new settlement had taken place since the war. The country in the West was still new, hope still lived, and the main argument against new settlement lay in the unprecedented severity of depression and drought which visited the prairie provinces especially. There has always remained, despite the critics, an active interest in colonization. Indeed, Quebec pushed its colonization activities with great vigor in the thirties. Parliament sought, in the Prairie Farm Rehabilitation policies, to rebuild confidence in the drought areas. Government aid was given to relief land settlement of unemployed from urban centers and to the transfer of farmers from crop-failure districts, and colonization agencies continued their co-operation and activities.

The original soldier settlement scheme was born in a period of agricultural prosperity in 1917. It was the only plan designed to assist the veteran who was physically fit, and the original purpose was to use crown lands. It soon became clear that most homestead lands were inaccessible or unsuitable. So, in 1919 the Act¹⁶ was revised to give the Soldier

¹⁶ Soldier Settlement Act, 1919, C. 71. Amendments were made in 1927, 1928, 1930, 1931, 1932, 1933, 1935, 1938.

Settlement Board wide powers to purchase and acquire land for settlement, make advances to settlers, provide for agricultural training, pay and allowances to trainees, supervise settlers, give training in home economics to wives and dependents, and to control settlement operations.

Eligible and qualified ex-soldiers were entitled to homestead entry of 160 acres where available, and the Dominion Government reserved all Dominion lands within a radius of fifteen miles of any railroad. But purchase of land was resorted to as homestead land proved unsuitable, unobtainable, or inaccessible. Loans were made up to \$7,500 at 5 per cent per annum interest, repayable on the amortization plan in six annual installments in the case of loans for livestock and equipment, and in twenty-five annual installments in the case of land and buildings. Land price was not to exceed \$4,500; stock and equipment, \$2,000; and improvements, \$1,000. In the case of land owned by the settler, \$3,500 might be advanced for the removal of encumbrances and loans made for stock, equipment and improvements up to maxima, provided the total did not exceed \$5,000. There were 180,000 inquiries and, during the two-year period, March 1919-March 1921, nearly 60,000 veterans applied for settlement, of whom over 43,000 were granted qualification after examination by the most competent committees that could be found at that time.

Under the Act \$100,034,331 was originally advanced to 25,017 soldier settlers, which included 224 Indians.¹⁷ As of March 31, 1940, the director reported that 8,118 of these were still on the land and on the books of the Board. What had happened to the 17,000 who had

disappeared from the lists? Nearly 3,000 had paid up their loans in cash and obtained title, and another thousand had sold out their equities. There remains 13,000 who voluntarily, by notice or by death, have relinquished their holdings. This means that half of the settlers cannot now be found on the original holdings. Critics of the scheme argue that this means the plan was a total failure. But it must be remembered that a census of almost any occupation in which veterans found themselves in 1920 would reveal that death, age, sickness, accident, and opportunities for urban employment have reduced the numbers greatly in two decades.

Between 1920 and 1929 there were many opportunities to seek more remunerative occupations, and there are many successful former soldier settlers today who found that the few years after the war under the scheme were not entirely wasted in that difficult period of readjustment. Had there been no soldier settlement scheme, upwards of thirty or forty thousand returned soldiers operating farms, or under training, or awaiting qualification would have added their voices and disappointed hopes to those of unemployed comrades in the urban centers.

From the viewpoint of the Dominion, total recoveries, up to March 31, 1941, reached 65 million dollars and it is expected that the total recovery will reach 95 millions. Thus, the capital loss to the government will likely be about 13 millions, to which must be added the loss of interest and some 25 millions in administrative cost from 1918 to 1941. The reduction in capital indebtedness and interest as a result of adjustments

¹⁷ Evidence given by Gordon Murchison, Director of Soldier Settlement, Special Committee (House of Commons)

on Land Settlement of Veterans of the Present War, *Minutes of Proceedings and Evidence No. 2*, (May 1942); also evidence to Special Committee on Pension Act, etc., *Minutes of Proceedings and Evidence No. 21*, (June 4, 1941).

and concessions made settlers stand as follows:

June 1922, interest exemption.....	\$10,269,108.87
June 1925, reduction in the sale price of livestock.....	2,927,809.99
April 1927, land revaluation.....	7,479,344.75
May 1930, 30% horizontal reduction in all loans.....	11,302,127.56
May 1933, interest remission.....	1,308,651.51
Dollar-for-dollar bonus, 1933 to 1940.....	3,426,007.25
Farmers' Creditors' Arrangement Act commencing July 1934.....	6,791,701.40
Reduction under provision of O/C P.C. 10472 authorized to date, approximately	900,000.00
TOTAL.....	\$44,404,751.33¹⁸

These write-offs have materially assisted the soldier settlers.

Consequently, with the improvement in agricultural conditions, it was found that, between 1939-44 inclusive, 4½ million dollars were paid, out of a total of 5¼ millions of contract maturities, and, in addition, there were pre-payments of 1.3 million dollars and 1,648 soldier settlers received titles to their lands. In the fiscal year ending March 31, 1944, 6,364 settlers had current installments due totalling \$860,871.83. To February 29, 1944, with still a month to go, 5,612 of these settlers had paid \$991,508.04, and 2,266 of these had made pre-payments of an additional \$443,619.39.¹⁹

However, it was realized by the government and its advisers, particularly by the ex-service men who administered the Soldier Settlement Act, that the plan had grave defects. Taking the ceiling figures (used in the new legislation) of \$4,800 for land and improvements and \$1,200 for livestock, this meant a charge of \$420 a year amortized on the old basis. Obviously, a veteran under typical conditions cannot maintain himself and his dependents and meet annual taxes and other charges if his indebtedness is practically the full cost

of the land, improvements, livestock and equipment. The maxima of the Soldier Settlement scheme stood at \$4,500 for land purchase, \$1,000 for improvements, and \$2,000 for stock and equipment. The average loan was much below this as, in case of land owned by the settler, the ceiling stood at \$3,500 for removal of encumbrances while the over-all loan for improvements, stock and equipment did not exceed \$5,000. The down cash payment of 10 per cent could be waived.

The hazards of the scheme can now be seen in retrospect. The settler acquired his farm, livestock and equipment at a time when prices of these were inflated, and he assumed an over-all debt at 5 per cent per annum disproportionate to the enterprise. Seventy per cent of the settlers settled in the Provinces of Manitoba, Saskatchewan and Alberta; and, in 1941, nearly 80 per cent of the problem cases on the books of the Board were to be found in these provinces. No other scheme existed to provide a form of opportunity for the veteran, and if he decided to become a soldier settler he had to take up full-time farming. He could not combine it with another occupation. He was obliged to confine himself to agriculture. He could not convert his farm to any other purpose.

The new Veterans' Land Act²⁰ is a permanent facility available throughout the working life of men or women who have served overseas or for at least 12 months in Canada. Whilst it will have a bearing on demobilization, settlement activities need not be crowded into a short period when prices may be high. Applicants will not surrender their rights by waiting for favorable opportunity. The measure is only one of many projects to aid the veteran to

¹⁸ Reply to Minister of Mines and Resources to delegation seeking cancellation of all indebtedness of present contract holders.

¹⁹ Gordon Murchison, "Soldier Settlement," *The Legionary*, May 1944, p. 11.

²⁰ The Veterans' Land Act 1942, and P.C. 7990, Oct. 14, 1943.

whom there is also open vocational and educational training, preference in employment and, under the War Service Grants Act, re-establishment credits to help in purchase of homes or businesses or tools. Also, he may receive allowances while awaiting returns from any enterprise in which he has embarked his savings.

Moreover, the new Act envisages variety in the forms of settlement. The main types are:

1. *Full-time Farming.* The Act as amended by P.C. 7990 (14 Oct., 1943) gives the director power to purchase for and sell to a qualified veteran land and buildings up to \$4,800 and stock and equipment up to \$1,200. The veteran must make a down payment of ten per cent of the cost of land and buildings and, if he desires to buy a more expensive property, he must meet the cost beyond the ceiling of \$4,800. The veteran then enters into a contract to pay to the Dominion Government two-thirds of the cost of land and buildings amortized over 25 years at $3\frac{1}{2}$ per cent per annum. He cannot acquire title except by fulfilment of this contract. He remains a tenant of the Crown for a period of 10 years, after which time he may acquire title by payment in full and thus secure the subsidy equal to one-half of the enterprise made by the government.

The set-up is as follows, using the maxima:
 Cost of land and buildings.....\$4,800
 Cost of livestock and equipment.... 1,200

Total.....\$6,000

Sale price to veteran:

Down payment.....\$ 480 (1/10 of \$4,800)
 Payable over 25 years at $3\frac{1}{2}$ %
 per annum..... 3,200 (2/3 of \$4,800)

Veteran pays..... 3,680
 Government subsidy..... 2,320

Total.....\$6,000

Title to livestock and equipment remains with the Director until paid for or transferred to the settler to facilitate marketing or exchange. The annual payment need not, therefore, exceed \$194.14. The entire cost of stock and equipment (\$1,200) plus \$1,120 towards cost of land and buildings, or 38% of total cost of establishment, is borne by the state.

2. *Small Holding (Coupled with Industrial or Other Employment).* The terms here are similar, but the provision may be made to apply to purchase of a home or small acreage outside a town. And mechanics, carpenters, masons, electricians, white collar men, factory workers, professional men may qualify. It is hoped to help disabled veterans in receipt of pensions who are interested in semi-rural settlement.

3. *Small Holding (Coupled with Commercial Fishing).* The veteran who is a qualified fisherman may be qualified for assistance to purchase a home with a small acreage and fishing equipment in lieu of farm equipment.

In all these, similar terms apply. Co-operative arrangements may be made by veterans to engage in partnership with regard to equipment loans, and the director is empowered to acquire and prepare land for settlement. Provincial governments are co-operating by the offer of crown lands to the director who can use modern power machinery to clear and prepare adequate acreage ready for cultivation. It is not intended to place veterans on bush land which would demand long years to make into going concerns. Since there are available alternative re-establishment credits to aid the purchase of urban or farm homes, this will diminish the number of applicants for these rural opportunities under the Act.

For the farm owner, the Veterans' Land Act provides loans at $3\frac{1}{2}$ per cent per annum to pay off mortgages, effect improvements, or buy livestock and equipment.

In addition, under the Post-Discharge Re-establishment Order²¹ assistance may be given to any of the above settlers or farmers by way of living allowances (maximum \$50 per month for a single man; \$70 per month for a married man, plus children's allowances) as needed until crop or other returns come in

²¹ The Post-Discharge Re-Establishment Order, P.C. 5210, July, 1944.

within 18 months of discharge, and is limited to one year or a period equal to length of service in the armed forces, whichever is shorter. Furthermore, the War Service Grants Act²² should be taken into account as this provides gratuities on discharge.

A single man (one year's service in Canada and three years' service overseas) will have with his arrears of deferred pay about \$1,500 on discharge; a married man with similar service and two children will have no arrears of deferred pay but will have over \$1,000.

Moreover, there is provision in the Veterans' Land Act to reduce the annual obligation to interest due only, in case of mishap such as a crop failure in the first five years. After July 1, 1945 allowances will be payable for children under The Family Allowance Act, 1944,²³ ranging from \$5 for a child under six years of age to \$8 if over thirteen and under sixteen, with intermediate rates. Thus the monthly children's allowances for two children would be enough to meet the obligation under The Veterans' Land Act contract. Though such allowances must be devoted to the maintenance of the children, they will release other sources of farm income for debt liquidation.

Legislation providing a floor for farm prices has been passed (Agricultural Prices Support Act, July 31, 1944).

Health insurance is on the way, as well as contributory old age pensions; but already the veteran has much of this protection. He is eligible for War Veterans' Allowance in case of incapacity through age or other cause, and this allowance now stands at \$60.83 monthly, permitting casual earnings of \$10 per month. The veteran may also insure under The Veterans' Insurance

Act at low rates for an amount between \$1,000 and \$10,000 to protect his widow or dependents.

Advisory committees under The Veterans' Land Act are authorized to aid in selection of land and settlers, and rescission of contract may not take place until an advisory board has recommended it. The settler is entitled to be returned his equity and, if he has no equity, there is a provision by which he may be given back his original down payment.

Land is now being acquired by the director, and arrangements made to secure tracts for clearing in order to take advantage of the present values of farm lands which, though rising, are not as high as it is expected they will be. It is estimated that about 18% of the present Canadian armed forces derive from and wish to return to agriculture so that, allowing for some change in this desire on demobilization, there will be a constituency of at least seventy thousand who will require re-establishment on the land—that is, men who were born and brought up on Canadian farms.

Then, there will be at least another one hundred thousand who may seek small-holding settlement near villages, towns and smaller cities in which they are employed as wage-earners or in their own business. It is worth noting that a large number of Canadian service men are not Anglo-Saxon in origin and, particularly in Quebec, the French-Canadian has not lost the century-old interest in colonization; so that there are programs and indeed an ideology among certain Canadian groups favoring land settlement. To Catholic, Scandinavian and Slavic communities many veterans will return as settlers under this Act. In such groups the parish is the community, the curé, priest or minister is the leader, and the neighbors are relatives

²² The War Service Grants Act, 1944.

²³ The Family Allowance Act, 1944.

bound together by family, religious and traditional ties and symbols.

On the other hand, most rural communities have grave deficiencies in the equipment for wholesome living, and the new veteran settler should be encouraged to deal with these. Much of this side of rural life comes under the direction of the provinces, and no scheme of land settlement for veterans can be successful unless there are bold provincial policies backed by the resources of the Dominion to improve

schools, teachers' qualifications and salaries, roads, communications, housing, plumbing, markets, medical service, farm credit, libraries, and community amenities and organization. These are part of long-term rehabilitation of the returning farm veteran and of postwar reconstruction. Every settlement prospectus is inadequate without these essentials, but the veteran settler must come back and fight for these better conditions of rural life.

Localization of Railway Facilities in Metropolitan Centers as Typified by Chicago

By HAROLD M. MAYER*

RAILWAY patterns are among the most stable structural elements in large American cities. Unlike many other types of land use, railway routes and, to some extent, terminal facilities were already well developed when the large cities burst the bounds imposed upon them by the use of foot and horse transport and spread out to absorb the surrounding countrysides. Railway facilities, unlike most other public utilities of more recent development, cannot be moved as easily as other elements of the urban pattern for these facilities are integral parts of the larger railway network as well as of the urban complex. Thus they must be localized where they can perform their specialized roles most effectively with relation to other railway facilities as well as to the general urban pattern. The tremendous capital investment and the complex structure of bonds, mortgages, long-term leases, and operating agreements represented by present rights-of-way, yards, and terminals enforce a relatively stable railway pattern.

Because railways are vital foundations of urban growth and because they are relatively fixed in location, the nature and methods of operation of their metropolitan railway facilities are of vital concern to all large cities in the process of planning their future patterns and structures. Some general principles affecting localization of railway facilities are illustrated by study of a typical large center.

Metropolitan Chicago, the world's most important railway center, possesses an extremely complex pattern of rail-

way lines, and a multitude of terminal facilities that together constitute a functioning organic unit. The complexity of the pattern, however, becomes less when one understands the relationships among its components. The general pattern is relatively simple; only the details and ramifications are complex. The numerous trunk lines that converge in central Chicago from all directions bring passengers to and from a series of six downtown terminals that have for many years constituted one of the city's major planning problems. Much freight, too, reaches the central area although in recent years the freight handling has tended more and more to shift toward the urban periphery. The thousands of cars moving to and from many thousands of origins and destinations both within and without the metropolitan area are classified and shuffled into road freight trains and transfer trains at large classification yards mainly on the urban periphery. To and from these yards lead a large number of radial lines, cityward continuations of trunk routes connecting these outer yards, the minor yards, freight terminals and about 5,000 industrial sidings. Interconnecting the outer and inner yards and also serving many industries along their routes are a number of belt lines that enable freight cars to move between any trunk line and any trackside location within the metropolitan area. Supplementing the belt lines are other switching and in-

* Research Planner, Chicago Plan Commission. Much of the material in this paper is condensed from the author's doctoral dissertation: *The Railway Pattern of Metropolitan Chicago*, Department of Geography, the University of Chicago, September 1943.

Chicago and by motor trucks that perform pickup and delivery. Finally, there are many accessory facilities necessary for the maintenance of the railway service: shops, engine terminals, coach yards and offices, all closely interrelated in location both to each other and to all features of the urban pattern.

Outer Railway Approaches

The dominant impression that one obtains upon first inspection of a map showing the railway pattern outside the Chicago city boundary for 40 or 50 miles in every direction (Figure 1) is that of a number of radial lines intersected by a circumferential line. The radial lines are here called the outer railway approaches, and the circumferential line is commonly known as the Chicago Outer Belt Line. Other than the general radial arrangement, the outer belt line, and the concentration of lines around the southern end of Lake Michigan, no other pattern is evident. In that respect, Chicago is in marked contrast to most other major railway centers where differences in elevation and slope of the land surface and the existence of water barriers strongly channel the railway approaches into a limited number of routes. No mountains, rivers, hills, or valleys restrict the approaches to Chicago. Only Lake Michigan and, to a very minor extent, the highest of the moraines that partially encircle the metropolitan area affect the regularity of the railway pattern. Close to the center of Chicago, however, the Chicago River and its branches affect the location of terminals far out of proportion to the small sizes of those streams.

The absence of major surface features has had an important effect upon the relationship between railways and the general land use pattern of metropolitan Chicago. The railway routes, and not

surface configuration as in many cities, formed the principal axes along which settlement has taken place and along which urban decentralization has been carried on. Of particular significance is the close relationship between the railways and the configuration of the outer boundary of urban development which took place most rapidly and intensively along the railway lines, thereby forming prongs of urbanization that extend far out into the hinterland.

Chicago Outer Belt Line

The trunk line railways enter what is generally called the Chicago Terminal District at the points where they are intersected by the Chicago Outer Belt Line (the Elgin, Joliet and Eastern Railway) at a distance of 25 to 40 miles from the commercial core of Chicago.

The Chicago Outer Belt Line constitutes a unique type of facility, distinct from the other belt railways in function and in location. From Porter, Indiana to Waukegan, Illinois it is 130 miles in length, considerably longer than any other belt line. Its average distance from the central part of Chicago is twice that of any other belt line. It passes for the most part through rural areas, in contrast to the other belt lines which are located largely in built-up areas. It is unique further in that it is the only belt line that crosses and has direct physical track connection with *all* of the trunk lines serving Chicago.

Like the other belt lines, the Elgin, Joliet and Eastern serves as a connecting link over which through freight traffic moves between the various radial lines, and as an intermediate carrier or terminal line for freight originating or terminating within the Chicago terminal district. Its functions and location are greatly affected by its ownership and control by the United States Steel Cor-

poration. Although it is a common carrier, a large proportion of its traffic moves to, from, and between plants of the parent company. To a great extent it is a local inter-plant facility as well as a belt line. It handles approximately 30 million tons annually, or about 22 per cent of the total traffic of all belt and switching railways in the metropolitan area.¹

The unique function of the Outer Belt Line as a road-haul carrier of through traffic around the outer edge of the metropolitan area is further demonstrated by the fact that in 1938 the average haul per revenue ton was 45 miles, considerably longer than that of any of the other belt lines. The long average haul reflects, of course, the peripheral location of the line.

Interchange of cars between the Outer Belt Line and the trunk lines that it intersects is direct and expeditious. At each intersection an interchange track is provided and, at the more important crossings, there is a small yard. Inbound and outbound freight trains on the trunk lines do not, as a rule, originate or terminate at the Outer Belt crossings because the traffic interchanged there constitutes a small proportion of the cars in most trunk line trains. In every case the Outer Belt intersects the main lines *beyond* their principal Chicago district freight yards. Thus the yards required for interchange of cars between the line-haul carriers and the Outer Belt Line are neither large nor complex and do not require vast areas as do the major classification yards of the trunk lines located closer to Chicago.

Primary Classification Yards of the Trunk Lines

Each of the principal trunk line railways radiating from Chicago operates

one or more classification yards in which freight trains are classified in accordance with their destinations and in which freight trains are assembled for further movement. In area they are the most extensive of all railway facilities, and their locations vitally affect the land use pattern of the entire metropolitan area as well as the efficient functioning of its railways.

On almost all of the trunk line railways of the metropolitan area the outermost of the classification yards are the largest and most important. In those primary yards the road freight trains are assembled outbound or are broken up into transfer trains inbound.²

Virtually all of the primary or outer classification yards have certain locational characteristics in common. They are located well inside of the Outer Belt Line and either just outside, or just within the next outermost belt railway. They are beyond the peripheral belt of industry that encircles the city of Chicago and its inner suburbs. The vast majority of the commercial and industrial establishments of the metropolitan area are closer to the center of Chicago than are the primary classification yards. The reason for the peripheral location of the yards is obvious if one considers that the object of all terminal switching movements is to handle inbound and outbound cars with a minimum of mileage and delay and, wherever possible, without reverse movement between road train and local destination, or between local point of origin and the road train in which the cars are to leave the terminal district.

Location of the major outer classification yards at or near the intersection of

¹ Interstate Commerce Commission, *Comparative Statement of Railway Operating Statistics, Years 1938, 1937, and 1936*. Washington, 1939.

² The term "road train" refers to a train operated between a yard or other location within the terminal district and a distant point as distinguished from a "transfer train" which operates from one yard or point within the terminal district to another within the district.

the outermost belt line (other than the Outer Belt Line railway) enables the belt lines to transfer cars to and from the trunk lines without back-haul over any section of the latter (Figure II).

Because the Elgin, Joliet and Eastern handles only one-quarter or less of the total belt-line traffic of the Chicago terminal district, the most efficient operation of transfer trains would not result from the location of major yards at the points where that railway intersects the trunk lines. Were the yards so located, large numbers of transfer trains would have to be operated over the trunk lines for longer distances to and from such more remote classification yards.

Level land is essential for the location of the large freight classification yards. For that reason among others, such yards are all located upon the level Chicago plain, rather than on the rolling morainic upland which surrounds the plain a few miles from the city.

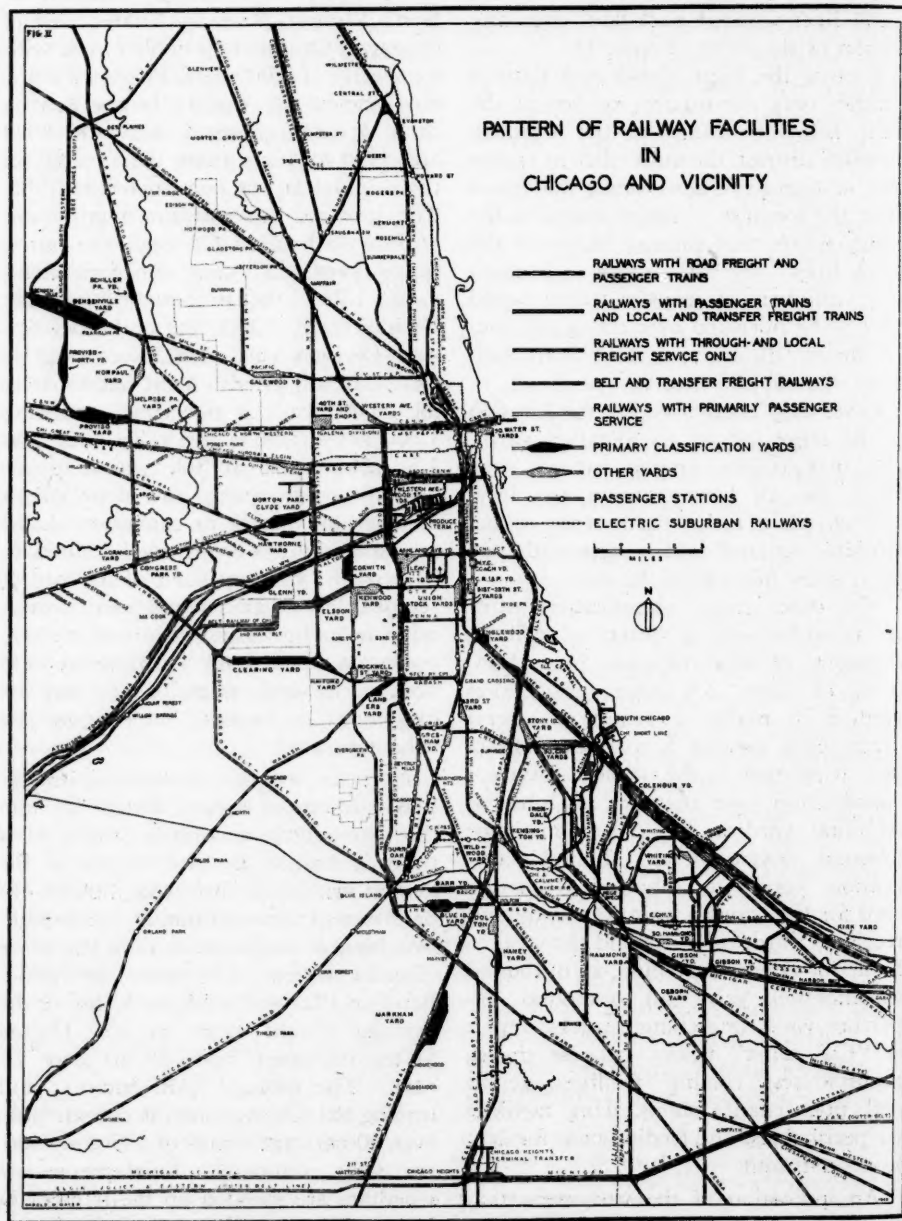
The outer major classification yards are provided with a variety of facilities requiring, in some instances, many hundreds of acres. A large classification yard is in reality a group of several yards, each serving a specialized function in relation to the whole. A typical classification yard includes an inbound receiving yard, a hump or throat for inbound movement, an inbound classification yard, an inbound departure yard for the transfer trains, an outbound receiving yard, an outbound throat or a hump for gravity switching, an outbound classification yard, an outbound departure yard, interchange tracks, repair or "bad order" tracks, caboose tracks, roundhouses, coaling facilities, repair and maintenance shops, icing facilities for perishables, and feeding pens for livestock in transit.

An indication of the vast areas that are required for the major classification

yards is afforded by the car capacities of the various sections of Proviso Yard, the primary yard of the Chicago & North Western Railway, located west of Chicago. Originally a smaller yard with a capacity of 2,000 cars, Proviso Yard is now one of the world's largest having been greatly enlarged between 1927 and 1930 to many times the capacity of the original layout constructed in 1902. The inbound classification hump yard at Proviso holds 3,274 cars, the hump repair yard, 187 cars, the forwarding yard, 1,724, the outbound Wisconsin Division yard, 1,889, the outbound Galena Division yard, 1,522 cars, and so forth. In all, Proviso Yard has capacity for 26,000 cars at one time, embraces 1,500 acres, and is five miles long and 1.5 miles wide at the widest point. Several other yards in metropolitan Chicago are nearly as extensive. Land for such facilities could not be found in or near the built-up parts of the city at reasonable cost and, consequently, even aside from the requirements of railway operation which favor a peripheral location, such yards must of necessity be located at or beyond the edge of the urbanized area.

As train lengths increase, classification yards must become longer because the economical maximum length of a train is limited by the length of the longest tracks in the yards, unless expensive and time-consuming "push-pull" switching is used, rather than the more efficient hump or gravity operation. Between 1921 and 1941 the length of the average freight train in the United States increased from 38 to over 50 cars. The average train entering and leaving the Chicago area is considerably over 50 cars and trains of 100 and more are very common. Furthermore, as schedules are speeded up the number of intermediate yardings of freight cars

between the points of shipment and consignment decreases and, conversely, the amount of switching and sorting at the major terminals and gateways such as



metropolitan Chicago (other things being equal) greatly increases.

The major classification yards are, therefore, tremendous establishments representing in many instances the culmination of a series of expansions and enlargements. In many cases they are the final result of a long series of removals farther and farther from the center of the city as space requirements have outgrown the areas of land available for expansion and as the land values in the vicinities of the older yards have risen beyond the capacity of the railways to purchase land for expansion of the classification facilities.³

Like the classification yards, large industrial plants have also been established on the periphery of the city where extensive sites are available at low cost. Such plants have located on the belt lines. The consequent rise in traffic on these belt lines has also been a factor in the peripheral movement of the classification yards which are now located along belt-trunk line intersections.

Chicago has a series of old freight yards along most of the trunk line railways which have more or less outgrown their original functions as major primary classification yards and now serve only industries in their vicinities. In such yards classification of road trains does not commonly take place. They are used for local interchange and switching, or for storage of idle cars. In some cases they have been completely abandoned. Many of them are no longer suited to the handling of modern trains.

The establishment of Proviso Yard as the primary classification yard for the C. & N. W. in the Chicago district, of Markham on the Illinois Central, Ben-

senville on the C. M. St. P. & P. and similar yards on many other railways resulted in the abandonment of one or more yards as major yards; and, in every case, the older yards were closer to the city. Along some of the railways (Figure II) a series of three, four or more yards may be seen, each once the major outer classification yard of its respective line, and each relegated to a secondary function when a newer and larger classification yard was opened farther from the city.

The final stage in the peripheral movement of freight classification outside of Chicago is perhaps in the "pre-classification" of trains at a division point far outside the metropolitan area. This process greatly reduces the amount of switching required in the metropolitan yards and, in effect, relieves the Chicago yards from the primary classification function altogether. As an example of how the process works, we may point to the C. B. & Q. Railroad. Unable to expand the Morton-Park-Clyde Yard which was its major classification yard on the western city limits of Chicago, the Burlington, rather than establish another and larger yard nearer the metropolitan periphery, decided to perform the primary classification at the next division points to the west: Galesburg for its main-line trains and Savanna, Illinois for its Mississippi River line trains—162 and 145 miles, respectively, from Chicago. At those points, inbound trains are classified in "station-order"; that is, cars are placed on the trains in the order they are to be dropped in secondary yards, at interchange points with connecting and belt lines, and for spotting at freight stations and industrial sidings in the Chicago area. Thus cars for the Outer Belt are placed at the head-end of the train, those for the next yard or junction are placed just behind,

³ Cf., C. C. Colby, "Centrifugal and Centripetal Forces in Urban Geography," *Annals of the Association of American Geographers*, 1933, pp. 1-20; and Homer Hoyt, "Forces of Urban Centralization and Decentralization," *The American Journal of Sociology*, 1941, pp. 843-52.

and so on. This enables the road locomotive to switch off the cars with minimum delay, and eliminates the necessity of reshuffling and classifying the entire train at a yard near Chicago. Similarly, other roads pre-classify at division points a hundred or more miles from Chicago; the New York Central at Elkhart, Indiana, the Michigan Central at Niles, Michigan, the C. & E. I. at Danville, Illinois, and the Wabash at Decatur, for example.

Belt Lines Within Terminal District

The Chicago terminal district is noteworthy for the magnitude and complexity of its belt line railways. By the use of belt lines, shipments may be routed to, from, or between any of the trunk line railways that serve the metropolitan area whether or not the trunk lines involved in the movement intersect. Likewise, shipments that originate or terminate on the industrial sidings or at the freight stations of any trunk line may be routed in or out of the terminal district over any other trunk line. The belt railway lines of metropolitan Chicago are, for the most part, owned and operated by specialized organizations—the belt railway companies which, in turn, are mainly controlled by the trunk line railways. Several trunk lines also operate circumferential lines without separate incorporation.⁴

There are, in the metropolitan area, in addition to the Outer Belt Line already described, three important circumferential routes, so located as to form a generally concentric pattern. Each of the three routes is controlled and operated, not by a single company, but

rather is composed of sections of railway under various ownerships and operations.

The circumferential routes are important factors in the localization of industries. The centrifugal trend in industrial location has been greatly accelerated by the operation of the belt lines which offer to shippers the opportunity to locate beyond the more congested central part of Chicago yet within easy access of all the trunk lines in every direction. Of the 5,735 industries with private switch tracks in the Chicago Switching District just before the beginning of the present war, 1,389, or 24.2 per cent, were located on lines of belt railway companies.⁵ Hundreds of additional industries are along the circumferential connecting lines of the trunk railway systems. From all such locations, cars are switched directly to and from the primary classification yards in transfer trains without the intermediate yardings that are required of cars bound to and from more central locations on the trunk lines. Reduction of trucking movements on congested streets, particularly for less-than-carload shipments, results in additional time savings.

The three major belt routes may, for convenience in discussion, be considered as the peripheral, the intermediate and the inner belt routes.

The peripheral belt route,⁶ approximately 50 miles long and located at an average distance from the Chicago central business district of about 15 miles, carries the heaviest traffic of the three routes. The line connects the primary classification yards of the principal trunk

⁴The term "belt line" as used in this paper refers to any circumferential line the primary business of which is intermediate hauling of freight to, from, or between trunk lines regardless of the nature of its corporate organization. It thus includes, in addition to belt lines proper, circumferential lines operated directly as integral parts of trunk line-haul carriers.

⁵Tabulation: *Tariff 22-BB, Directory of Industries with Private or Individual Side Tracks in the Chicago District*, Illinois Freight Association, Chicago Switching Committee, June 1, 1939.

⁶The peripheral belt route is not to be confused with the Chicago Outer Belt Line (Elgin, Joliet & Eastern Railway) which is twice as far from central Chicago.

line railways and enables interchange of cars to be made between such yards with minimum delay. In general the line is located at the outer edge of the built-up urban part of the metropolitan area, from one to five miles beyond the limits of the city of Chicago. Transfer trains are operated on regular schedules to connect at the classification yards with the scheduled "manifest" or fast freight trains of the trunk lines. In addition, local way freight trains pick up and drop cars that originate and terminate at the industries along the belt line. The line is entirely double-tracked.

The northwestern sector of the peripheral belt route differs somewhat from the rest of the route in character of operations and traffic. It is operated by the Chicago & North Western Railway—primarily for through freight moving between Proviso Yard and the north and northwest. It serves a similar purpose for the C. M. St. P. & P. (The Milwaukee Road) which has trackage rights over the line into Bensenville Yard. By use of this line each of the two railways can route trains to and from its main freight classification yard west of Chicago even though a large number of such trains operate over lines to the north and northwest.

Most of the peripheral belt route, however, is jointly owned and operated by the Indiana Harbor Belt Railroad and the Baltimore & Ohio Chicago Terminal Railroad. Interchange yards are located at each intersection of the line with radial trunk lines, somewhat similar to the yards along the Outer Belt Line. The route passes close to the west end of the huge Clearing Yard of the Belt Railway and, continuing to the southeast, it crosses several trunk lines at Blue Island and there splits into two separate lines. The first, the line of the

Baltimore & Ohio Chicago Terminal, leads to Barr Yard where the B. & O. road freight trains are assembled and broken up. The second, the line of the Indiana Harbor Belt Railroad, leads to the busy East Blue Island Yard where many road trains of the New York Central System originate and terminate. East of the two yards several lines of both belt railway companies serve plants in the Calumet industrial district of northwestern Indiana.

The peripheral location of the joint double-tracked Indiana Harbor Belt—Baltimore & Ohio Chicago Terminal route—together with the control of both companies by important trunk line railways, has encouraged development of fast transfer service on schedules closely coordinated with trunk line road freight trains.

Most shipments originating on belt lines within the Chicago switching district⁷ cost the shipper no more than if they were to originate directly on the line of the road-haul carrier by which they leave the district since the latter railway in most cases absorbs the switching charges of the belt lines. Industries are thus free from the former disadvantage of having to pay additional freight charges on all traffic except that handled directly by the line-haul carrier. Belt line locations, therefore, cost the shipper no more in freight charges than do locations on trunk lines. At the same time they give access not to one, but to all, of the trunk lines entering the district. A location on a trunk line route, on the other hand, generally compels the shipper to route his traffic over the railway on which he is located or to pay additional switching charges on traffic moving to or from a competitive road-haul carrier.

⁷ The outer boundary of the Chicago Switching District is generally located just outside the joint I. H. B.—B. & O. C. T. belt line route.

The intermediate or middle-belt route, only half as distant from the commercial center of Chicago as the peripheral route, passes through an intensively developed industrial zone within the city. Except for its northern sector, most of the route is operated by the Belt Railway Company of Chicago, a terminal and transfer company owned jointly by 13 trunk line railways. That company serves its owners as a transfer route and as a source of traffic to and from the hundreds of industries along the route, as well as a means of efficient and rapid classification of cars.

The principal classification facility of the Belt Railway of Chicago is Clearing Yard, so named because it was designed to perform for the railways which share in its ownership much the same function that a clearing house serves for banks. It receives cars from the various railways, classifies them, and assembles them into transfer trains, delivering them to the line-haul carriers for further movement toward their destinations. Within the yard are 180 miles of track, with a capacity of over 6,000 car classifications per day. Special facilities such as an icing plant for refrigerator cars and stockyards for livestock in transit enable the yard to service all types of shipments. Clearing Yard is located just outside of the city boundary, about 15 miles southwest of the central business district, in an area that is partly undeveloped vacant land, in part intensively developed with industrial plants, large and small. The yard, five miles long, extends between the Belt Railway Company's line on the east and the peripheral I. H. B.-B. & O. C. T. line on the west. Thus all three of the major belt railway companies of the Chicago district, as well as the 13 owner trunk lines, have direct access. Clearing Yard is ideally located for the function that it performs.

It is near the areal center of the terminal district, is between the two principal belt routes, and is easily accessible from all directions. Furthermore, the numerous industries in the vicinity (including those of the Clearing Industrial District) are well served by switching movements directly to and from the classification tracks of the yard, thereby making intermediate hauling and yarding of cars unnecessary. A shipment from the Clearing Industrial District, for example, southbound over the Illinois Central, is switched directly to the appropriate track in the classification yard at Clearing, placed in a transfer train that takes it to Markham Yard where it is classified directly into the Illinois Central train that carries it to its southern destination. Only two yardings, therefore, are necessary between the loading of the car and its final movement out of the metropolitan area.

The inner belt route, third of the concentric routes within the Chicago Switching District, is more complex in function and in operation than are either of the other routes. It is not a single railway line, but rather a group of several railways operating on closely parallel rights-of-way over a single elevated embankment. At its nearest point it is less than two miles west of downtown Chicago. For its entire length it is lined with industrial establishments which are served by numerous sidings and small yards. There are also numerous carload and l.c.l. freight stations along the line.

The three belt line routes (excluding the Elgin, Joliet and Eastern Railway which is different in character) and the many radial trunk lines give to the city of Chicago and its contiguous suburbs a cellular pattern. The built-up sections of the metropolitan area are divided into compact units, separated by railways and the associated strips of industrial

land from neighboring units. Orientation of the railways in conformance with the gridiron pattern of city streets emphasizes that characteristic. Because most of the lines, especially those close to the center of the city, are on elevated embankments they form physical barriers among neighboring communities. That encourages the development of distinctive neighborhood units with homogeneous economic, social and ethnic characteristics within each of the cells. This condition is somewhat of a disadvantage to the city in that it impedes free and easy access from one part of the city to another but is an advantage in that it furnishes physical lines of demarcation within which the planner is presented with the opportunity of developing physically integrated neighborhoods. Many such cellular areas are now within the blighted and near-blighted parts of the city. In the rebuilding and rehabilitation of such areas by utilizing the railway boundaries the planner and developer has the opportunity to create real communities with homogeneous or balanced characteristics. The industries along the railways bordering the communities can furnish employment to the residents who will live in the central parts of each cellular unit.

Trunk Line Routes

Near the commercial core of Chicago the 28 radial routes of the 21 railway systems that enter the metropolitan area are crowded into seven major routes. Therefore, the general pattern of the trunk lines, although radial, has dendritic modifications near the metropolitan center. Were each line to retain its separate identity in approaching the center of the city and to operate over its own right-of-way, there would be such crowding and duplication of facilities that little

if any land surrounding the central business district would be available for other than railway use.

The seven approach routes to central Chicago are aligned parallel to the north and south branches of the Chicago River, to the shore of Lake Michigan, and to the rectangular street grid of the city. The earliest routes appropriated, in general, the water frontage. They were originally regarded mainly as feeders of traffic to the water routes. Such railway lines (built before the street grid was extensive) do not, in general, conform to it. Later lines, in order to avoid excessive condemnation and the platting of irregularly-shaped parcels, were constructed with north-south or east-west alignment parallel to the city streets. Such lines generally were not oriented with regard to water areas because waterfront land was taken up by earlier lines. Later, the rail-water interchange of traffic became relatively unimportant. The general flatness of land in and near Chicago made unnecessary the paralleling of waterfronts to secure favorable grades.

The seven approach routes (Figure III), proceeding counter-clockwise from the north, are as follows:

1. The Chicago River North Branch route, used by the Milwaukee and Wisconsin divisions of the Chicago & North Western Railway.
2. The Kinzie Street route, used by the Galena division of the C. & N. W. (Chicago's earliest railway) and, to a point two miles west of downtown Chicago, by a joint line of the C. M. St. P. & P. and a freight division of the Pennsylvania system.
3. The 16th Street route, used by the Baltimore & Ohio and its tenants (Chicago Great Western, Soo Line, and Pere Marquette), the Burlington, and a freight line of the C. & N. W.
4. The Chicago River South Branch-Des Plaines River route, utilizing the old "Chicago-Portage" route across the glacial divide, used by the Alton and Santa Fe rail-

ways, and, for a part of the distance, the western line of the Illinois Central.

5. The Pennsylvania: C. & W. I. route, consisting of two parallel rights-of-way used by the Pennsylvania (Pittsburgh, Fort Wayne & Chicago) Railroad, and the Chicago & Western Indiana, the latter a terminal road leasing trackage rights to the Erie, Wabash, Chicago & Eastern Illinois, Monon, and Grand Trunk Western.

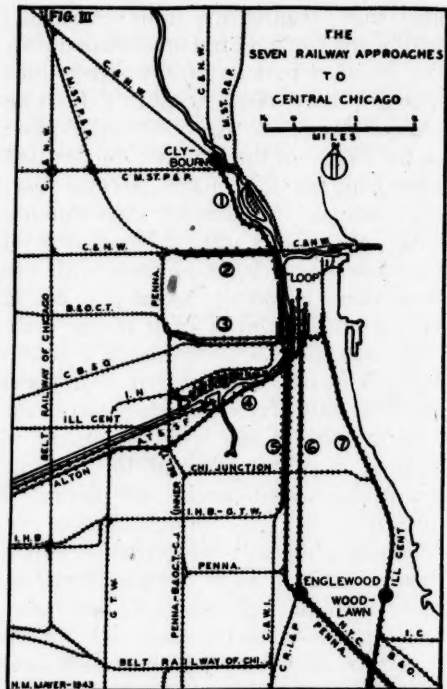
6. The New York Central-Rock Island route, consisting of common trackage owned jointly by the New York Central (Lake Shore & Michigan Southern) and the Chicago, Rock Island and Pacific, and also leased to the Nickel Plate Road.

7. The Lakefront route, owned by the Illinois Central, and also used by the New York Central (Michigan Central). "Big Four" (New York Central System), Chicago, South Shore & South Bend (South Shore electric) and freight trains of the Chesapeake & Ohio and Nickel Plate Road.

Several characteristics are common to all seven routes of approach to central Chicago. Particularly noteworthy is their width which in some cases exceeds a city block. In addition to four or more main running tracks, the rights-of-way are also developed with freight houses, team tracks, sidings, interchange freight yards, passenger coach yards, and other accessory facilities. Traffic density on the routes is high and in some cases each of the running tracks serves a special function: local freight, suburban passenger, through passenger, and so forth. Most commonly the freight tracks are the outer ones in order to serve sidings and yards without necessity of crossing over other main tracks.

The relations between the seven approach routes to central Chicago and the localization of industry and residential areas is noteworthy and of great importance.

Along each of the routes there has been developed wedges or strips of industry which radiate from the commercial core of the city. Only the Lakefront route is



relatively free from industrial development. Two such strips, along the two branches of the Chicago River, had already begun their industrial development before railways came to Chicago but the railways undoubtedly enabled them to maintain their importance long after waterways became relatively unimportant as a factor affecting industrial location in downtown Chicago. Each of the four remaining routes, however, passes through industrial areas that extend for miles outward from the heart of the city. Thus the general pattern of industry within the city of Chicago, as distinguished from the outer parts of the metropolitan area, is radial and corresponds generally to the routes by which the railways reach the city's center.

The smoke and noise that in the past have accompanied railway operation,

together with the advantages of industrial location along the main-line railways prior to the period of belt-line development, have forced residential building mainly to the interstitial areas between the prongs of industry along the railway axes. The requirements for residential use of the land were not so specialized as were those for industrial use; as a result the residential development took place in the areas that remained after the industrial sites had been appropriated. Thus in Chicago a wedge-shaped pattern of residential areas has developed within the city proper, particularly close to the commercial core within the area between Lake Michigan and the innermost belt line, as contrasted to the cellular pattern farther out and the stellate pattern on the urban fringe. Between each pair of railway approaches to central Chicago is a pie-shaped residential area, with its apex close to the commercial core where the railways converge.

Freight Terminals of Central Chicago

Surrounding the central business or "Loop" district is a belt of freight terminals, partly obsolete in design and layout, and in part poorly located for efficient railway operation. Some of the freight terminals form serious obstacles to the orderly development of the area surrounding the Loop. In many instances, also, these terminals are a source of excessive operating expense to the railways. They are mainly survivals from the period before the development of belt lines and motor truck, although there are a few more modern terminals which serve the establishments of the commercial core and the wholesale and light manufacturing district that surrounds it.

In recent years there has been a strong tendency for many freight houses

to be located near the edge of the city rather than close to its heart. Notable examples are the huge package freight terminal and transfer house at Proviso Yard and a similar, though somewhat smaller terminal at the Galewood Yard. Shipments routed to and from such outer freight houses avoid the congested yards and terminals closer to the city. Those shipments that are bound to and from the downtown freight terminals are generally subjected to more or less delay in passing through the terminal district. They are loaded on cars that are switched, in the case of outbound shipments, to the nearby industrial or secondary classification yards. There the cars are put on transfer trains which, in turn, are operated between the secondary yards and the large primary classification yards. At such yards, after additional time is consumed in switching and classification, the cars are finally placed in road trains for movement toward their destinations. In the case of less-than-carload shipments an additional handling is commonly necessary because such shipments from a given siding or freight station are often placed in cars without regard for ultimate destination, and are reloaded at "transfer houses" into cars wherein shipments from many origins but bound for the same destination or route are combined. By trucking l.c.l. shipments to and from the freight houses on the urban periphery, much of the intermediate switching and reloading is eliminated and many hours can be saved in transit time.

The Tunnel System

The Chicago Tunnel System, a unique facility for the handling of freight within the central business district and to and from the railway freight stations situated in the zone immediately surrounding

the commercial heart of the city, makes possible the elimination of much trucking over crowded downtown streets and provides hundreds of establishments with direct connections to the railway stations. The system consists of about 62 miles of narrow gauge electric railways operating in tunnels under practically every street of downtown Chicago and extending into the surrounding wholesale and manufacturing belt. Business establishments on the streets served by the system have private sidings and loading platforms in their basements. The tunnel railway is a common carrier and issues through bills of lading in connection with the standard railways. Tunnel cars are hauled to the railway freight stations and there loading and unloading to and from standard railway cars is handled directly and expeditiously. The service performed by the tunnel company is somewhat analogous to that performed by the belt line railways on their lines farther from the center of the city. Many establishments without direct tunnel connections are served by the tunnel company's motor truck pickup and delivery service which connects with four union freight stations where the company handles freight interchange between its tunnel cars and motor trucks on the one hand and standard railway cars on the other.

Passenger Coach Yards

The areas required for servicing passenger equipment, for its storage while not in use, and for the making up and breaking up of passenger trains are very extensive. Obviously, the centrally located land in the vicinity of the major passenger terminals is far too valuable for such uses. As in the case of the freight classification yards, there has been a notable decentralization and peripheral movement of many of the

coach yards. Because some operations involved in maintenance of passenger equipment are similar to those for freight cars, several of the railways have located their coach yards near freight yards and shops. However, in view of the short time available for turn-around of rolling stock between incoming and outgoing runs, there is an economic limit to the distance coach yards may be located from the downtown passenger terminals. The expense and time of backing an empty train for several miles from depot to yard and then backing it into the depot for the outgoing run is minimized wherever possible. In some cases, particularly several of the fast streamlined trains making turn-arounds of two hours or less, additional cars would be required to maintain schedules if the coach yards were not located relatively close to the terminals.

As in the case of freight yards, the major consideration in the localization of the passenger coach yards is a reasonable balance between the high cost of the land close to the depot on the one hand and the expense and time of long turn-around back-up runs on the other. A secondary factor is the inertia of locations that were selected many years ago when sites now close in were peripheral.

Although distance of coach yards from depots varies from less than a mile in the case of the Illinois Central to 10 miles in the case of the Nickel Plate Road, most of the railways have located their passenger yards relatively close to the downtown terminals. Formerly the scheduled turn-around time for passenger equipment was much longer than now and it was feasible to locate coach yards at sites that were then on the edge of the city on land of low value and with sparse settlement. As the city expanded, such areas generally remained

in railroad use because coach yards, unlike freight yards, could not be economically removed outward toward the new urban periphery. On the contrary, it became ever more desirable to move them closer to the center of the city but, in general, it was impracticable to do so because of intensive use and high value of close-in land.

The coach yards for the rolling stock used in suburban trains are, in several instances, located closer to the downtown depots than are those that service equipment used in long-distance intercity trains. Such separation of facilities and differentiation of functions is necessitated by the rapid turn-arounds and shorter runs of the suburban trains. Obviously, a train making a thousand-mile round trip can more conveniently and economically make a five-mile turn-around run between depot and coach yard than can a suburban train that makes a 20- to 40-mile round trip.

Roundhouses

Roundhouses, where locomotives are stored and minor repairs made between runs, together with the associated forges, foundries, and other associated facilities including those for fueling the motive power, are usually found in proximity to the yards where cars are assembled into trains. The pattern of areal distribution of roundhouses and their accessory facilities, therefore, closely corresponds to the pattern of major freight and passenger yards.

Shops

Railway shops may be divided into two general classes: first, major shops in which motive power and rolling stock of entire railway systems or large segments thereof are overhauled, repaired and rebuilt; and second, smaller shops

where light running repairs, ordinary overhauls, and routine maintenance of equipment operating to, from, and within the terminal district are carried out.

Maintenance shops other than the large major shops are located chiefly in or near yards where trains are handled. Each of the larger freight classification yards has as a part of its layout a number of "bad-order" tracks upon which cars found in transit to require minor repairs are placed. Those cars are taken to the shops, usually conveniently located nearby. In association with each passenger coach yard, likewise, is a series of shops where ordinary repairs are made. Running repairs to locomotives are most commonly made at shops located within the roundhouse and engine terminal areas which, in turn, are usually associated with yards.

The very large railway shops, on the other hand, are conspicuous by their relative absence from metropolitan Chicago. Of the 21 trunk-line systems that serve the area, only one operates its principal shops within Chicago. The explanation is found in the fact that the railways terminate in rather than pass through the metropolitan area. The shops, particularly those of the large systems that extend for hundreds of miles, tend to be located toward the middle rather than at the ends of their respective railway systems because motive power and rolling stock can be moved to such intermediate locations with maximum expediency and minimum mileage. Most railways, rather than operate a number of shops for major equipment repairs each serving a segment of the systems, prefer to centralize such operations at one or a very limited number of very large plants, thereby receiving the benefits of economies that result from large-scale mass-production assembly line methods.

Such large shops are, in general, located at or near the "center of gravity" of their respective railway systems where there is a balance between distances to extremities of the system on the one hand and the relative traffic density in both directions from the shop location on the other. In cases where one end of a large system has much greater traffic density and hence more rolling stock and motive power than the other end, the shops tend to be located near but seldom at the heavy end. Thus the Pennsylvania Railroad centralizes all major repairs at Altoona, somewhat east of that system's central point, because the eastern portion of the railway has heavier traffic and more equipment than the western portion.

The operation of this principle in location of railway shops is illustrated by the movement of the principal shops of the Illinois Central System, long located at Burnside on Chicago's South Side, to Paducah, Kentucky. The latter city is an important junction point nearly midway between the two ends of the system's main Chicago-New Orleans line. The Burnside shops, once a very important center of railway activity and employment in Chicago, are now used only for maintenance of suburban electric cars, diesel switch engines, and other equipment used locally within the metropolitan area.

The Keeler Avenue shops of the Chicago & North Western are the largest in Chicago and the only ones in the metropolitan area which serve as the primary shops of a large railway system. These shops are about one-half square mile in area. The convergence of several of the principal routes of the C. & N. W. at Chicago makes them accessible from many parts of the system. Unlike many other railways the C. & N. W. is not composed of a single line with branches;

it is a complex network the principal lines of which fan out from Chicago to the north, northwest, and west. With such a pattern, the location of the system's principal shops in Chicago is a logical exception to the general rule.

Passenger Terminals

The passenger terminals constitute the cores of the metropolitan railway pattern and are the points to which practically all of the radial trunk-lines are directed.

Six major depots located in the central business district handle the great volume of passenger traffic, relieved only slightly by several way-stations in outlying parts of the city—notably at Englewood, on the south side. To the downtown terminals lead the seven avenues of approach to which reference was made above. Associated with the depots is a vast agglomeration of subsidiary facilities including the yards through which the trains are switched in entering and leaving the station tracks, the baggage and express houses, and the mail handling facilities. Beyond those facilities are many of the principal freight houses which required central locations in the horse-and-buggy age and which now suffer from impaired efficiency through congestion on nearby streets only partially relieved by the tunnel system.

The passenger terminals and their associated facilities form a band of steel around the commercial core of Chicago and form barriers limiting expansion of the urban center. That condition constitutes a large part of the explanation for the unduly high land values resulting from concentration of intensive land uses in a very small area of central Chicago, a problem of acute importance to all who are concerned with the orderly development and functioning of the city.

Summary

For nearly half a century the consolidation and co-ordination of the railway terminals in the central part of Chicago has been prominent among local public issues. The literature on the subject is enormous,⁸ and scores of plans for new terminals have been published; but little has actually been accomplished. The present terminals were located partly in response to the competition of the railway companies, each seeking to secure the most favorable routes into the city and the most advantageous terminal sites. The roads that entered the city first took the best sites; those that arrived later were forced to accept less favorable locations or to utilize jointly with earlier railways the routes and terminals already developed. Several important cooperative agreements resulted among the railways to avoid duplication of facilities. They form precedents for more comprehensive terminal consolidations in the future although some of the railways have considerable investments in existing facilities and high-value land in the central area which gives them competitive advantages they would be unwilling to give up.

Most of the plans for re-arrangement of railway facilities have been primarily

concerned either with the immediate surroundings of the central business district, or with the operation of the railways as such. No comprehensive plan has been evolved that considers in detail the relationships between the railway pattern and the other elements of the urban agglomeration in order to insure that the railway facilities will function more effectively as integral parts of the metropolitan area as a whole. The relationships that should be considered include, among others, those between the railways and the location of industrial districts, residential areas, streets, highways, mass transportation routes, neighborhood and community boundaries, harbors and waterways.

Considering railway service and operation only, the pattern of Chicago's railway facilities, which developed in response to the forces of competition without any comprehensive planning, is reasonably efficient. There is need, however, for the improvement of the pattern and its operation in several respects. The classification of freight can be even further simplified and expedited. Traffic can be routed to avoid; in some cases, the more congested facilities near the center of the city. And finally, last but not least, the railway phalanx around Chicago's "Loop," particularly the multiplicity of passenger terminals and associated facilities, must be simplified.

⁸ For a summary of the more noteworthy Chicago terminal studies and reports see: Harold M. Mayer, *The Railway Pattern of Metropolitan Chicago*, Ph.D. dissertation (University of Chicago, 1943), pp. 128 ff.

Amortization of Mortgage Premiums

By RAY B. WESTERFIELD*

I. The Problem

THE policy currently employed by savings and loan associations in the amortization of premiums paid on mortgage loans acquired affects seriously the savings and loan industry.¹ In the competition for home financing they are unduly handicapped by too rapid extinguishment of such premiums giving the race to the types of institution that follow a more logical policy. It is expedient that consideration be given to the rate at which such premiums are amortized, particularly those on FHA mortgage loans.

The prevailing market price of prime mortgage loans is above par, par being defined as the sum of unpaid principal and accrued interest. The top premiums on Title II FHA mortgage loans are in the vicinity of 4% and on Title VI 3%, and the tendency is for them to rise further. Institutional lenders cling tenaciously to their best loans (both FHA-insured and non-insured) and they ask and are able to get more than par for any they are willing to sell. And brokers are readily able to find buyers even of Title VI loans at a premium of (around) 3% on what amounts to a "when, as and if issued" basis.

The reasons for this situation are familiar enough. Basically, loans are scarce. Even before the present war started, Title II loans commanded goodly premiums of 3% to 4%. With the well-nigh complete stoppage of this form of underwriting on new construction the dearth becomes worse. And the restricted construction of defense and war housing under Title VI has done little to satisfy the current demand for in-

vestment outlet. Besides this contraction in the supply of new loans, the abundance of investment funds has led to an exceptionally rapid liquidation of existing mortgage debt.

As against the dearth of new and old loans there is an unprecedented plethora of funds seeking investment. The earnings of present and prospective homeowners are enormous, the normal outlets for spending are restricted or fully closed, and savings are piling up—the rapidity of growth in savings accounts, money in circulation, life insurance sales, and other forms of thrift never was greater. One important outlet for investment is well-nigh closed for the duration, namely, the issue of new private securities. Indeed, throughout the 1930's and 1940's the investment bankers have floated a pitifully small amount of such securities. The only sizable outlet for investment remaining is war bonds.

In this supply-demand situation both private and institutional investors who heretofore put little if any of their funds into mortgage loans are, now and increasingly, dumping millions of redundant dollars into this outlet. The traditionally low risk of mortgage loans is lowered by FHA insurance, by higher standardization, by breadth of market, by more ready and dependable market, and by the more general use of the direct reduction mortgage. Confidence in this kind of investment is growing into universal favor.

An even more significant factor forcing up the price of outstanding mortgage loans is the easy money policy of the

¹ This article is written with the savings and loan industry particularly in mind, but the principles presented have general applicability.

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government. With a view of financing the New Deal deficits and of encouraging recovery during the 1930's our government adopted the policy of keeping the money market easy. The necessities of financing \$250 billions of war debt have forced a continuation of that policy. It is a mathematical fact as well as a market fact that low and declining interest rates, such as have prevailed the past decade, raise the value of all outstanding securities having a stipulated rent, interest, or dividend return. The price of each and all of such investments is driven upward until the yield on them is made equal to the prevailing market rate of interest on comparable investments.

Now it is important to note that most all of these factors driving the price of mortgage loans to higher premium levels will continue for the rest of the present war and probably for years afterward. Although the supply of mortgage loans will jump when the War Production Board's restrictions are lifted, it will still—for years to come—fall short of the demand. In short, all institutions lending on home mortgages must plan on (1) *low interest rates* on new loans made and (2) *premiums* on loans acquired by purchase.

And what is equally to the point, it is impossible to escape this reduction in yield by abstaining from buying mortgage loans at a premium and, instead, making new loans at a higher rate. Roughly speaking, if one buys a 6% loan having ten years yet to run at a 10% premium and he amortizes one-tenth of the premium each year, his net yield is 5%; and he could, presumably, not make new loans of equal quality on more than a 5% basis, for these are substitute outlets for funds and the relative allocations to them tend to equate yields thereon.

The problem to which this article addresses its attention is the speed at which the premium is amortized. In the above illustration the rate assumed was one-tenth a year. The premium was written off in ten years' time, i.e., the period of the loan. Obviously, if the lender's policy were to write it off at once, or over five years, the yield would be less and it might pay better to make new loans than to buy existing mortgages at premiums.

II. Definition of Premium

The investor has been immemorially acquainted with the term "premium" in the securities market. The financial page of every newspaper carries market quotations of long lists of bonds, notes, certificates, and preferred stocks bearing a fixed rate of interest or dividend. These quotations are in percentages of par: for example, Southern California Edison 3's of 1965 at 105½, or Quaker Oats preferred 6's at 152, or United States Treasury 2¼'s of 1959-66 at 100.25,² the premium being, respectively, \$55 per \$1,000 bond, \$52 per \$100 share, and \$2.50 per \$1,000 bond. If one buys such securities through a local broker, the price ultimately paid will also include brokerage fee, transportation costs, etc. It is the universal practice of purchasers — whether individuals, banks, insurance companies, or others—to regard the total cost above par as premium and to calculate the amortization and yield on this total cost; and the regulatory authorities approve this concept of premium and this calculus of amortization.

In the case of mortgage loans, "asked" prices are set by brokers who offer sizable blocks for sale and "bid" prices by institutions seeking such investments.

² More commonly the decimal in quotations of government bonds means thirty-seconds of one per cent, rather than tenths.

The market resembles the "over-the-counter" market in securities rather than the stock exchange for there is no central institution handling mortgage loans.

The price quoted on such loans includes the brokerage and other charges involved in delivery; or, if the brokerage fee is differentiated from the premium, it is wholly arbitrary how much is so set apart for in this market brokerage fees are not yet standardized. Furthermore, the premium asked in some localities is loaded with certain "finding fees," legal fees and "kick-backs" to contractors.

It is impossible for the buyer to break the premium down into these elements and treat them differently in his accounts. The rule of some regulatory authorities to the effect that the cost of procuring business (share accounts, mortgage loans and bond investments) shall be charged currently to earnings is, consequently, incapable of application in this connection except upon some arbitrary basis.

To classify brokerage as one such cost of procuring business, as some regulatory authorities do, does not resolve the problem because, when the seller of mortgage loans quotes a price, it includes all charges and no mention of brokerage or other item in that price is made. The secrecy that surrounds the giving of "kick-backs" would prevent the buyer from discovering the size of this element in the price. Anyway, no regulatory authority, so far as my survey has extended, makes any such stipulation for the immediate writing off of brokerage on bonds bought even though in respect to bonds the brokerage fee is standardized and public and therefore readily ascertainable. There is no logical reason for treating mortgage loans differently from bonds.

Some regulatory authorities state that there can be no allowance for premium except in case of acquisition of mortgage loans by *purchase*; that, where the loans are "originated" by a savings and loan association through the process of "sponsoring" an FHA development and making construction loans to the contractor, a premium is impossible.

This ruling is questionable as to fact, and it tends to drive such business into competing types of lending institutions. For example, recently a Long Island national bank which had long been associated with a prominent contractor and financed his projects approached a Connecticut savings and loan association with two alternative propositions: (1) to sell 200 completed FHA Title VI loans in a development about to be started in a nearby town at a premium of $3\frac{1}{2}\%$, the servicing to be done by a trust company in Connecticut, or (2) to allow the association to sponsor the development, make the construction loans and service the permanent loans in which case the premium would be 2%. It is difficult indeed to see why the association should be allowed to regard the $3\frac{1}{2}\%$ in the first case wholly as premium and to amortize it over say a five-year period; but, if it elected to sponsor the development, make the construction loans and service the permanent loans—activities which are surely the proper function of a savings and loan association and which in the competitive struggle it should be encouraged and facilitated to undertake—it would have to write off $1\frac{1}{2}\%$ at once as a "cost of procuring business" and be allowed to amortize only 2% over say a five-year period.

III. Amortization Accounting and Computation

No book in accounting which the writer has been able to find in the long

list of college textbooks on the subject contains a word on the amortization of premiums on mortgage loans purchased or originated; but every book treats the amortization of premiums on bonds acquired as investments. This disparity merely reflects (1) the relative frequency of investment in bonds as against mortgage loans and (2) the recency of rise of a standardized mortgage (FHA) having a wide and ready market with frequent public quotations. Undoubtedly in the years to come, if the recent expansion of FHA or comparable mortgage lending continues and investors are thus more frequently confronted with this choice of investment, accountants will treat the amortization of premiums on mortgage loans in their textbooks and manuals.

The basic thesis of amortization is that if a bond is purchased at a premium and we assume other things remain the same, its value tends to decrease to par as its maturity (or call date) approaches and that, therefore, balance sheets should reflect this decline in value if they are to present a true picture. In other words, the premium should be written off gradually over the remaining period of the bond. At maturity of the bond the balance in the bond investment account will have been reduced to par. And, from an income standpoint, it is deemed better to spread the premium loss over this period as a deduction from interest income instead of taking the entire amount as a loss when the bond matures (or is called).

In the computation of amortization the bond is regarded as riskless and all other factors affecting market value are ignored. Changes in market value during the period of amortization are ignored because the buyer is assumed to hold the bond to maturity.

There are two accepted methods of calculating amortization: (1) The

"straightline" or "approximate" method in which the amount of the premium is divided by the number of interest periods (annual, semi-annual, or quarterly) the bond has yet to run. This spreads the premium loss equally over the remaining life of the bond and the dollar amount of net income is the same in each period, but the rate of income on the net investment increases. While this method is not scientifically accurate it is very simple and more widely used, being allowed by the Department of Banking of the state of New York and other important regulatory bodies.

(2) The "scientific" or "bonds outstanding" method which makes the net investment in every interest period show the same effective yield rate. The effective yield on a bond bought at a premium is lower than the nominal rate; and this method of computation makes the amortization equal to the difference between the interest credit on the outstanding net investment and the coupon debit. The periodic amortization increases as maturity of the bond is approached. Elaborate amortization tables are available, based on this method of computation.

IV. Amortization Requirements by Regulatory Authorities

A survey of the requirements of the various authorities regulating financial institutions (state and federal) as regards the amortization of premiums on bond and mortgage loan investments indicates a significant variation.

(A) *The Comptroller of the Currency* stipulates that the "purchase of an investment security at a price exceeding par is prohibited, unless the bank shall: (a) provide for the regular amortization of the premium paid so that the premium shall be entirely extinguished at or before the maturity of the security and the

security (including premium) shall at no intervening date be carried at an amount in excess of that on which the obliger may legally redeem such security; or (b) set up a reserve account to amortize the premium, said account to be credited periodically with an amount not less than the amount required for amortization under (a) above."

Relative to the amortization of premiums on FHA loans, the Comptroller has ruled that the premium paid on FHA Title II mortgage loans need not be charged off immediately upon acquisition and that, if a bank so desires, it may amortize premiums paid on such loans by annual charge-offs of not less than 1% of the original face amount of the note until the entire premium has been extinguished. *

He accepts as common practice the adding of the brokerage paid by the bank in procuring bonds and FHA mortgage loans to the premium and the amortizing of the sum of the two items over the life of the bond or to the nearest call date.

(B) *The Banking Department of the State of New York* requires that interest-bearing securities purchased by a bank or trust company be entered on its books at the actual cost and be not thereafter carried at a valuation exceeding that cost as adjusted by amortization that will bring them to par at maturity, except that they may be carried at cost if appropriate amortization reserve is set up for the purpose of bringing them to par at maturity. Where securities purchased at a premium are callable prior to maturity, the rate of amortization must be adjusted to reduce the carrying valuation to the call price at the nearest call date. No adjustment for amortization or amortization reserve is required to be made on the books except when net profits are computed.

In the case of premiums on FHA mortgage loans the department recommends that they be amortized over a period of not more than three years from date of purchase, and it regards as objectionable the capitalization of brokerage and other charges, holding that these should be debited to expense.

(C) *Insurance Commissioners.* In New York the amortization of premiums on bonds is governed by the provisions of the New York Insurance Law. Generally speaking, the premium is amortized over the term of the bond unless the purchase price of the bond exceeds the redemption value, in which case the premium is amortized to the redemption price at the date of redemption. It is provided that the amortization may be computed by the "straightline" method or by the "scientific" method.

In accordance with a resolution adopted by the National Association of Insurance Commissioners in June 1940, premiums paid on FHA mortgage loans may be written off over a period of five years. No credit is allowed for amortized values of the premiums paid for other than FHA mortgage loans.

Brokerage and other charges incidental to the purchase may be included in the purchase price and, accordingly, included in the premium.

The regulations of the Connecticut Insurance Commissioner allow brokerage and other charges to be treated as part of the price of bonds; but in case of FHA mortgage loans such brokerage and other charges are debited to expense, thus showing an inconsistency both within its own regulations and with its neighbor state, New York, in both of which many insurance companies are domiciled.

(D) *Federal Home Loan Bank Authorities.* In response to letters of inquiry the following situation was revealed:

The Federal Savings and Loan Insurance Corporation has not promulgated any regulation relating to the amortization of premium on FHA mortgage loans acquired by insured associations—matters of this kind, insofar as they relate to federal associations, being regarded as “particularly within the province of the Federal Home Loan Banks.”

The Federal Home Loan Bank of Des Moines has no specific rule or regulation regarding amortization of premiums on FHA mortgage loans; but it recommends that the amount capitalized be amortized semi-annually over a period not to exceed five years or the life of the loan, whichever is less. The bank failed to state its policy regarding the capitalization and amortization of brokerage and other charges.

The Federal Home Loan Bank of Chicago has promulgated no rule governing the rate at which premiums on FHA mortgage loans must be amortized. With respect to the capitalization and amortization of brokerage charges incurred in procuring loans, the bank states that it is the general practice of both federal and state-chartered associations in its district to charge them to expense. It goes further and approves not only this practice but also the Illinois requirement that “premium” be similarly charged to expense.

The Federal Home Loan Bank of Los Angeles states that, following the suggestion of the Chief Examiner of the Federal Home Loan Bank Administration, it recommends that, if the premium is capitalized, it be amortized over a period not exceeding five years or the life of the loan, whichever is less.

The Federal Home Loan Bank of Winston-Salem has not promulgated any rule or regulation governing the period of amortization of premiums on FHA mortgage loans. It stated that

matters of this kind were handled by the supervisory department of the Federal Home Loan Bank Administration; but, as noted above, the Federal Savings & Loan Insurance Corporation stated that they were handled by the Federal Home Loan Banks!!

The Federal Home Loan Bank of Little Rock has issued no rule or regulation governing the period within which premiums on FHA mortgage loans must be amortized; but, as cases arise, it recommends that the premium be amortized semi-annually not to exceed four or five years and in most instances agreement was reached on four years.

The Federal Home Loan Bank of Indianapolis recommends that the premium paid on FHA mortgage loans be charged off in the shortest possible time, preferably within one year and at least within three years. The reason given for the policy is that these mortgage loans may be prepaid or refinanced by another lender at par. It also regards brokerage as an expense properly charged during the accounting period when incurred. This bank also stated that regulations governing accounting principles for federal associations are not made by the Federal Home Loan Bank but by the Federal Home Loan Bank Administration and are uniform over the entire nation!!

The Federal Home Loan Bank of Topeka allows the capitalization of the premium and its amortization over a period of five years except that, if any loan is repaid in full, the entire premium in connection with that loan is immediately charged off.

The Federal Home Loan Bank of Boston has no rule or regulation governing the amortization of premiums on mortgage loans, but it recommends as a “sound practice” the immediate extinguishment of the premium. Only in

case of the purchase of a sizable block of mortgage loans should premiums be capitalized and amortized and then the amortization should be accomplished within from three to five years. It regards commissions paid to brokers to obtain loans as a cost of doing business and a proper immediate charge against earnings. The bank does not believe it possible for a premium to be associated with mortgage loans originated by an association!

In summary, the Federal Home Loan authorities have no common policy in the matter of capitalizing and amortizing the premium, brokerage and other charges incurred in the acquisition. Indeed it appears that little thought has been given to the question, and there is confusion among them as to whose function it is to formulate a policy. Those banks that have established a policy set the maximum period of amortization at five years; some of them favor immediate write-off of premium, and still more the immediate write-off of brokerage and other charges. The reasons given for these policies differ and not all are consistent.

(E) *State Authorities.* Responses to an inquiry directed to the state supervisory authorities regarding the amortization of premium and other costs paid by savings and loan associations on FHA insured loans acquired by purchase or origination, revealed the following situation:

	<i>Number of Supervisory Authorities Replying</i>
No rule or regulation and no recommendation indicated.	18
Regulation provides that premium be:	
charged off at once.	1
charged off within one year of purchase.	1
amortized within a period not exceeding 5 years.	1
No regulation, but recommended that premium be:	
charged off at time loan is purchased.	9
charged off during current fiscal year.	1
amortized within a very few years.	1
amortized within 3 years.	1
amortized within 10 years or less.	1
amortized throughout life of loan.	1
No reply.	15
Total.	70

* Includes District of Columbia and Hawaii.

Obviously the state supervisory authorities who have established a regulation or made a recommendation—17 in all—are disposed to be severe in the speed at which premiums must be written off. Of these 17 authorities 12 would have it done at once or within the first year, 3 within 3 to 5 years, 1 within 10 years, and 1 during the remaining life of the loan. There is evident in the replies no consistency as to geographical region or as to size or importance (from a savings-and-loan angle) of state. That so many states have no rule or regulation and that so many are content with a recommendation rather than a formal regulation indicates that the problem has not become very important, at least in the mind of the supervisory authorities.

V. *Effects of Severe Amortization Requirements*

Rigid requirements of the regulatory authorities for the rapid amortization of premiums, together with the refusal to allow brokerage and other charges to be capitalized and amortized along with the premium, tend to have significant adverse effects upon the savings and loan industry.

When a savings and loan association complies with the regulation or recommendation of the supervisory authorities and charges premiums off at once or within a short time, current net earnings for the fiscal period are reduced—forcing a reduction in the dividend rate or in the accumulation of the reserve, or in both, and rendering the net earnings unstable however meritorious the purchase may be. Of course, in real fact the reserves are not reduced but merely hidden by this arbitrary undervaluation of assets. The heavy charges to current earnings reduce net earnings greatly, suddenly and erratically. The

disparity of treatment of amortization of premiums reduces the comparability of statements of earnings by different associations. The lower and unstable earnings reflect on management; and the association does not enjoy the public favor that rightfully belongs to it.

In the second place, the lack of uniformity in the requirements as among the Federal Home Loan Banks lessens the comparability of the associations over the country as to existing reserves. Associations whose portfolios are loaded with bonds, which enjoy liberal and logical amortization policies quite universally, do not have their reserves charged down anywhere near so far as do associations that are more successful in acquiring mortgage loans by purchase or origination, which is indeed their proper province and function.

The third major effect of the requirement of rapid amortization of premiums is to discourage savings and loan asso-

ciations from buying or originating loans that command premiums in the market. The managers of an association are loath to charge heavy premiums to current earnings and make a bad showing to shareholders. This reluctance would be whittled down nigh to nullity if the premium might be distributed over the remaining life of the loan, as it is in the case of bonds. Thus savings and loan associations are discouraged from absorbing the current offerings of mortgage loans, which is their natural element and function. The loans are absorbed, instead, by commercial banks, life insurance companies and other investors who amortize premiums more slowly or are in a better position to charge them off at once. This adverse effect on the role of savings and loan associations is evident in the origination and ownership of FHA insured loans, as shown in the following table:

DISTRIBUTION OF MORTGAGE LOANS BY TYPE OF LENDER, 1942

Institutional Mortgagees	Total Mortgage Recordings	FHA Insured Loans Originated*	FHA Insured Loan Recordings	FHA Insured Loans Owned
Savings and Loan Associations.....	36.5% ¹	9.6% ²	9.0% ¹	8.0% ³
Banks and Trust Companies.....	27.6	35.6	43.9	44.0
Insurance Companies.....	11.2	15.8	47.8	31.9
Mutual Savings Banks.....	5.1	4.6	30.7	7.6
Other mortgagees than individuals.....	19.1	34.6	60.4	8.5
<i>Total.....</i>	<i>100.0%</i>	<i>100.0%</i>	<i>.....</i>	<i>100.0%</i>

¹ Per cent of all mortgage loan recordings.

² Per cent of all loans originated.

³ Per cent of all insured loans outstanding.

* Mortgages on 1-to-4 family homes; Sec. 203 of Title II and Sec. 603 of Title VI.

There are, to be sure, other factors accounting for this poor showing of the savings and loan associations in respect to the origination, recording, and owner-

ship of FHA insured mortgage loans. In general the industry has been indifferent, if not opposed, to the FHA type of loan preferring to loan on its own more or less traditional bases and to buy sparingly FHA insured loans in the open market. This is no place to state and criticize the reasons for this indifference or opposition: It suffices to state that this abstention from absorbing FHA insured loans has given competing types of institution a grand opportunity in mortgage-lending during the past decade and that many associations now, on account of the abundance of funds, the scarcity of other loans and the proven character of certain FHA insured loans would originate and purchase more of such loans were it not for the severe requirements of premium amortization. This penalty becomes more and more severe as the scarcity of loans becomes more pronounced and premiums rise to higher levels.

To escape from the penalty the associations follow three policies: (1) they refuse to accept money from new and old shareholders—a policy frowned upon by resolution of the United States Savings and Loan League; (2) they carry extraordinary amounts of cash in vault or with banks, i.e., in non-earning form; and (3) they buy heavily of war bonds, which yield less than the traditional dividend rates of the association. The possession of inordinate amounts of cash surely does not bespeak good management: There is no virtue in excessive liquidity. The purchase of war bonds is virtuous in that it is patriotic thus to help finance the war; it is, nevertheless, merely a vicarious act for the customers may just as well buy the bonds direct rather than buy shares in an association which in turn buys war bonds with the money received; and the action of the association is a patriotic service only insofar as it induces people to save and

buy bonds who would not otherwise do so.

The heavy ownership of war bonds tends to convert the association into an investment trust and perhaps that function could be better performed by real trusts on account of wider diversification of portfolio, higher average yield, and extra earnings from portfolio management. Associations can rise to this sort of service only when they are willing to invest in FHA insured loans and other loans and, to the degree permitted, in other securities than war bonds.

VI. Reasons for Supervisors' Requirements

It is not likely that the supervisory authorities in levying their amortization requirements did so with the purpose of crimping the activity of the associations in originating or purchasing FHA insured or other types of mortgage loans; but, even if they had been so minded, there would have been little complaint from the savings and loan associations because these associations have been, as noted above, indifferent—if not opposed—to the FHA scheme.

The problem did not, moreover, reach size and importance until recent years when, with the scarcity of loans and the plethora of funds, the problem of investment became serious for the associations. It is probable that the early recommendations and regulations of the supervisory authorities were made impromptu and casually (without much thought or consultation with accounting authorities) for the volume of business involved did not warrant much else. Once set, however, there is great inertia to change a supervisory policy.

Communication with the supervisory authorities, by letter and person, shows that two principles dominate their thinking when they require speedy amortization: (1) That a premium paid on a

mortgage loan is, together with brokerage, legal and other incidental charges, a cost of acquiring new business which should be paid for currently just the same as advertising and personal solicitation. (2) That mortgage loans, whether they are direct-reduction, sinking-fund, or straight loans, do not in real fact have a strict maturity or call date, for they may be paid off before nominal maturity, in one payment or in installments, and that, as a consequence, it is impossible to know how fast the premium should be amortized.

The first of these two reasons is not consistently applied for (as stated above) the premium, commission and other costs of acquisition of bonds are quite universally allowed to be amortized over the remaining life of the bond. It is, in fact, impossible to distinguish the various elements that may be included in the premium on a bond or mortgage loan, for the premium is determined by the price which, in turn, is determined by the supply-demand situation in the market; the premium may fluctuate widely despite the fixity of certain real or imputed costs, and it may or may not cover them. The practice of investment dealers is, in the case of bonds, to add to the market price a certain percentage of par for commission and other incidental costs and thus arrive at the price the investor must pay: the excess of this final price above par is, by well-nigh universal practice and with supervisors' approval, amortized over the remaining life of the bond and no part of this excess is regarded as "cost of acquiring new business" which must be written off at once. It is a strained logic that treats mortgage loans on a different basis.

A principle applied by accountants in the distribution of costs is to correlate cost with the life of the benefit received therefrom. For instance, if a machine

costs \$1,000 and it lasts long enough to produce 100,000 units of product, each unit of product would be charged one cent. Or, if one pays \$1,000 single premium for a 5-year term policy on the life of an officer, the cost is allocated \$200 a year. Similarly, if \$100 above par is paid for a 20-year bond or mortgage, \$5 (or some more exactly calculated amount) should be charged each year to the interest yielded by the investment.

To require that the total premium and other costs of acquiring new business (investment) be charged off at once tends to cripple management, for it dissuades (if it does not prevent) management from taking advantage of investment opportunities and from keeping funds in earning form.

As for the second principle actuating the regulatory authorities, namely, that rapid amortization is a warrantable requirement because mortgage loans may be prepaid or resold at any time and so they do not have a strict maturity or call date—and therefore no amortization table can be set for them—it is an exaggeration. It is true that accountants have generally taken the position that premiums paid by an investor on the purchase of bonds or similar securities should be amortized in such a manner as to reduce the carrying value of the security to its redemption price by the time of the earliest redemption date. It is assumed in this position that maturity value is in the nature of the case quite significant, that is, that the holder of the security expects to hold the security to call date or maturity and at that time the debtor will pay off the obligation at a stipulated price which, by assumption, is less than the price at which he acquired it; that the security loses this difference in value steadily from date of purchase till call or maturity

date. In real fact, the market value may vary widely, above and below this book (carrying) value which is calculated on a riskless, stable-market basis; and, if this disparity is ignored, it is on the ground that it will be held to maturity by which time the premium, discount and disparity will all be wrung out.

In the case, however, of securities held only for a short term, amortization of premium has less significance for variations in market value are so much more important to the holder than variations in the book value. Inasmuch as such a security will soon be sold, consideration of the market price is prime. If that price becomes depressed to the point where it is exceeded by the recorded amount of principal, accrued interest and unamortized premium, it is sound practice to write down the book value to the market value. Ordinarily, for most bond issues it is not difficult periodically to obtain market quotations for this purpose; but the same facility does not exist in respect to all mortgage loans. Perhaps the better conservative rule would be to carry such securities at cost or market price, whichever is lower.

The question thus arises: where should mortgage loans be classed, as long-term, long-held instruments, or short-term, short-held, and how do they compare with bonds in this respect? Title II and Title VI FHA mortgage loans run 20 to 25 years, which compares fairly well with bonds as long-term instruments. Institutions, such as insurance companies, savings banks, commercial banks and trust companies (both for their own account and for trust funds), and savings and loan associations, do, in the grand preponderance of cases and particularly under the present dearth of investments, hold tenaciously to their mortgage loans even more so than their bonds; and bonds are more frequently employed than

mortgage loans, as a form of investment for reserves, which means short-term holding. The existence of the Federal Home Loan Banks removes in large degree the necessity for disposing of mortgage loans, for member institutions can borrow against them, on long- or short-term basis, at rates lower than the mortgage yield. The conclusion on this score is that it is more logical to amortize the premium on mortgage loans over their remaining life than it is the premium on bonds.

"But," the regulatory authorities say in substance, "the mortgage loans may be prepaid, and the holder is helpless at preventing this. In case of callable bonds there is a definite period for which amortization can be computed. The privilege of prepayment will be used as soon as the market rate of interest falls or as the debtor's position is improved. If, on the other hand, the prospect is for higher market interest rates, the loan, paying less and reasonably sure not to be redeemed, will fall in price, wiping out the premium."

This problem, which seems to worry the regulatory authorities more than the history of mortgage loans warrants, can be resolved. (1) Instead of denying amortization of premium on all mortgage loans during the remaining life of the loans merely because some loans are prepaid or resold, let the authorities make a statistical study of the record of such prepayments and resales and, if they find the life expectancy of such mortgage loans is shortened one, two, or more years, let the amortization be computed to this shorter term of years. (2) Let them forecast the trend of market interest rates and make proper adjustment in the life expectancy of mortgage loans. (3) When any mortgage loan is prepaid or resold, let the holder charge the unamortized portion of the premium to

profit and loss at once. Methods (1) and (2) are probably too difficult for most uses and it would be better to adopt method (3) and allow amortization over the remaining life of the loan.

VII. Opinion of Accountants

After the foregoing was written it was decided to consult the experts. With a view of getting the most expert opinion possible on the accounting principles involved in amortization of premiums on mortgages, a questionnaire was submitted to 25 accountants having nationwide reputations. The list was supplied by a prominent professor of accounting in one of the major universities and embraced, in his opinion, the 20 professors of accounting and 5 professional accountants who were most competent in the theory and practice of cost accounting. To date replies have been received from 17. (The fact that the questionnaires were mailed out in the height of the summer vacation season undoubtedly accounts for the slowness of replies. Two replies made by other than the addressees were not tabulated.)

The questions raised, and with the answers received, were as follows:

Question 1. "It is generally regarded as sound practice to amortize the premium paid on a *purchased bond* over the *remaining life* of the bond, at least so long as the market price does not sink below the amount of principal and accrued interest. For what logical reason, if any, should it be required that the premium on a *purchased mortgage loan* be charged to 'Profit and Loss' *at once* or be amortized *during the next 3 or 5 years regardless of maturity of the loan?*"

Of the 15 tabulated replies, 13 stated that there was no logical accounting reason for treating premium on mortgage loans differently from that on bonds, and almost all of them went out of their way to state positively that no such discrimination should be employed. For

example, one professor who has exercised a profound influence on cost accounting in America and who opposed discrimination against mortgage loans, states:

"The objective of amortizing premium paid on a purchased bond over its remaining life is to measure more accurately the annual income from such bond. Therefore it is incorrect in principle to write off such premium either at once or in a period less than remaining life. If it is done, then the annual income yield of each year is either overstated or understated in order that the 'book value' of the bond may be understated to be 'conservative.'"

Another professor said:

"Offhand I would be inclined to say that the investor would be more likely to hold a mortgage to maturity than a bond and accordingly there would seem to be some greater practical reason for orderly amortization of premium over contractual life in the case of the mortgage than in the case of the bond."

Of the respondents who favored discrimination against mortgage loans, one said that books . . . "kept on the cost basis, rather than on the realizable or on the earnings-capacity basis, may continue the premium (amortized) until redemption"; and the other, who incidentally is the accountant for a regulatory body, said: "Since the mortgage loans in question may be paid off any time prior to maturity, it seems to be sound to eliminate the premium immediately or write it off over a few years."

Question 2. "It is generally regarded as sound practice for the purchaser of a bond, when he is determining the amount of premium to be amortized, to include in the price the commission paid to the broker, and any other costs involved in acquiring the bond, thus regarding these incidental items as part of the premium and allowing them to be amortized over the remaining life of the bond. For what logical reason, if any, should it be required that the commission paid to the broker of a mortgage loan, together with other minor incidental costs of acquisition,

be charged to 'Profit and Loss' at once, and not be allowed to be amortized over even 3 years?"

Of the 15 tabulated replies, 13 saw no reason for the disparity of treatment. The replies were even more vigorously positive than to Question No. 1, to the effect that no discrimination against mortgage loans was warranted. For example, a professor whose textbooks are used in hundreds of colleges throughout the country, states:

"Regardless of the problem of amortization of premium the rule should be that the total cost of an investment, including brokerage, and all other applicable charges, should be set up in the investment account. Moreover, in general it is not necessary or advisable to segregate in the investment account the different components of cost. Accordingly, as I see it, it is purely arbitrary accounting in the case of any investment to charge a part of the total cost immediately to profit and loss."

The two respondents who favored immediate charge off or quick amortization of premium on mortgage loans (Question No. 1), also favored immediate charge off of brokerage and incidental costs of acquisition, and for like reasons. One of them held: "Such commissions and incidental costs should ordinarily be considered part of the premium paid on the acquisition of the mortgage loan," and, being part of the premium, it should be charged off immediately or rapidly amortized."

One respondent noted that such items are charged to profit and loss at once by some purchasers in order to reduce annual federal income tax, trying to obtain a "100% deduction" for the unamortized costs and a 25% capital gain tax on the gain from sale. But this would be tried by the purchaser; the regulatory authorities would have no interest in tax practice.

Question 3. "It is true that most mortgage loans may, at the option of the mortgagor, be paid off before maturity, by paying the amount of unpaid principal plus accrued interest. The direct-reduction FHA mortgages permit prepayment. Occasionally a penalty charge for such prepayment is stipulated in the mortgage note; usually, however, the mortgagee does not demand payment of the penalty. Suppose the purchaser of a mortgage loan at a premium be allowed to amortize the premium over the remaining life of the loan, but later, before maturity he disposes of the loan or it is paid off, would it be a logical and satisfactory requirement that he charge to 'Profit and Loss' at that time all the premium not yet amortized?"

Of the 15 tabulated replies, all 15 declared that this disposition of the unamortized premium was proper. This conclusion was drawn in slightly different ways. One says:

"If the owner of the note secured by the mortgage accepts prepayment of the principal, or any considerable part, he has sacrificed his right to high nominal interest. The measure of his sacrifice is the unamortized premium. The unamortized premium has thus become a loss. The prepayment privilege in the agreement had the effect of reducing the premiums the purchaser is willing to pay for the mortgage note."

Another saw "no alternative disposition of any unamortized premium remaining at the time the principal of the mortgage loan is fully collected." A third said:

"If the mortgage is sold or paid off for less than the (properly) amortized cost, a loss is automatically registered (wiping out the unamortized premium). If sold for more, a gain is registered after absorbing the unamortized premium. So in either case the unamortized premium is automatically absorbed in Profit and Loss."

A fourth stated:

"In the case of Depreciation on Fixed Assets if an asset is scrapped before the depreciation has been completely taken, it is customary to

charge the undepreciated portion of the asset directly to Profit and Loss in the year in which the scrapping takes place. The same thing could apply equally well in the problem" of unamortized premium.

And a fifth:

"In the case of any security, whether it is a mortgage loan or any other type of security, the total cost of the investment, which is still upon the books, should be closed out when the security is sold or otherwise disposed of. This means of course that if an accounting had been set up on the assumption that the security would be held to maturity and a corresponding scheme of amortizing premium adopted, the balance of the premium—like all the other dollars remaining in the investment account—could be closed out as a part of the cost of the proceeds received in the event the security were disposed of prior to maturity."

Conclusions

The conclusions of the author of this article are very well summed in the words of one of the accountant respondents:

"To the accountant, whose duty it is to see that a balance sheet truly reflects the financial condition of a business and also its true profit and loss, there can be no question but that a mortgage premium and a bond premium be handled in precisely the same manner. Any regulation requiring that mortgage premiums and incidental costs be charged to profit and loss at once instead of being spread over the life of the mortgage would appear most unreasonable and not in uniformity with sound accounting principles.

"By immediate write-off of such items the balance sheet of an organization, whose main business is mortgages, may be seriously impaired and would not show the true financial condition. By the same token the profit and loss statement would be so distorted as to become practically worthless. This is evidenced by the fact that a premium or discount not shown on the balance sheet is a gross understatement or overstatement of the assets, as the case may be.

"The question as to whether the mortgage is a straight mortgage or a direct-reduction

mortgage is immaterial. The straight mortgage should be handled as an ordinary bond and a direct-reduction mortgage as a serial bond. In the latter case, care should be taken to set up a proper pro-rata amortization table.

"The fact that certain types of direct-reduction mortgages have a prepayment clause may be ignored unless there are clear indications of redemption before maturity. Here, however, it would be advisable for the accountant to consult statistical records to determine the likelihood of redemption of this type of mortgage and if the percentage warrants, to make a proper adjustment to the amortization table to be used. Only by this method can the true value of the assets and liabilities be stated and the true profit and loss be shown.

"Commissions and incidental costs of acquisition of mortgages . . . cannot be separated from the premium of a purchased mortgage. This must be amortized over the life of the instrument in the same manner as a bond. An arbitrary amortization period of three years or an immediate charge-off to profit and loss would be inconsistent with sound accounting principles and would not reflect proper values or true earnings.

[As for charging off unamortized premium at time of disposition or prepayment of the mortgage loan], "a great deal depends on the system of amortization set up. Should the system make allowance for ordinary percentage of prepayments on a particular group of mortgages and the amount of prepayments does not exceed such percentage, then the question is moot and does not arise. However, in the case where no extra provision is made and the amortization table covers individual mortgages and the mortgage is prepaid or resold, then the entire balance of unamortized premiums must be charged off at the time of prepayment or resale. This conforms with sound accounting principles in so far as all unamortized premium or discount then becomes a final profit or loss depending upon the circumstances. Assuming the original setting up of the amortization or accumulation table to have been well intentioned and a later resale or prepayment definitely fixes the profit or loss, it is inconceivable that the unamortized balance should not be charged off in full at that time."

Economics of Soil Conservation: II. Farm Business Adjustments

By E. C. WEITZELL*

IT IS generally accepted that the aim in farm management is to obtain the largest possible net income. Inasmuch as soil conservation is a phase of farm organization and resource management, it must conform to this aim. To that extent it cannot be said that conservation is independent of cost-price relationships. Nevertheless, as pointed out in a previous article, it is possible that custodians of land may not be guided entirely by income motives.¹

Accepting the premise of economic considerations in soil conservation, let us examine the farmer's relation to prices of the products he sells and to the prices of the products he buys. The farmer's position in our economy is best described as *purely competitive*.² In other words, farm units are so small that they are unable in any way to affect the market price of farm commodities by expanding or contracting production on individual farms. Thus farmers are subject to a competitively determined price often based upon a world market.

On the other hand, most industrial concerns are monopolistically controlled, including control over supply and the ability to administer a more or less inflexible price.³ The result is a tendency toward a disparity between the prices of commodities produced by the two sections of our economy, high prices for the goods the farmer has to buy, and low prices for the commodities which the farmer has to sell. Under such condi-

tions farmers may find it necessary to exploit resources, particularly during depressions when farm prices "hit bottom" while nonagricultural prices are being administered at a higher level.⁴

The disparity between the two types of prices is recognized in the programs to achieve parity for agriculture. The whole concept of "parity" is based on the need for bringing agriculture into equilibrium with the rest of the economy in order to provide reasonable levels of income and thus provide incentives for maintaining productivity at a high level. There is little chance that the monopolistic aspects of the labor and industrial economy will be broken to resemble the competitive situation of the farmer.

Farmers in a given area may also find costs and prices against them because of interregional competition. If, by reason of certain production advantages, a number of areas (in the same or even in different countries) are competing for the same market, the high-cost producers, or those at a disadvantage from the standpoint of prices received for their products, may be forced to exploit the soil in order to continue production. On the other hand, the logical correction is to shift to types of production for which their areas hold the most advantages. Nevertheless, practices and land uses once established are not easily changed. Efforts to maintain agricultural production in areas where interregional competition dictates forest or grazing are

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¹ E. C. Weitzell, "Economics of Soil Conservation: I. Individual and Social Considerations," *Journal of Land & Public Utility Economics*, August 1943, p. 339.

² Edward Chamberlin, *The Theory of Monopolistic Competition* (Cambridge: Harvard University Press, 1938), pp. 6-7, 11.

³ G. C. Means, *The Relative Inflexibility of Industrial Prices*, Sen. Doc. 13, 74th Congress of the United States, p. 9.

⁴ M. Ezekiel and L. Bean, *Economic Bases for the Agricultural Adjustment Administration*, (U. S. D. A., 1933), pp. 6-13.

contrary to economic efficiency; yet changes may mean a modification not only in land use but also in the size of the unit, or even a shift from private to public ownership.

Under the classical concept of the function of prices it might be assumed that continued low income would result in land being removed from production and then, with a diminished supply, that prices would rise. However, it is a peculiarity of agriculture⁴ that it is not quickly responsive to lower prices. Within certain limits, farmers find it desirable to produce at a modified maximum capacity at all times, irrespective of price. Much of the farmer's production is due to his own or his family's labor and other *fixed* factors, such as land, buildings and equipment.⁵ He is not in a position to "fire" his labor nor to redirect his resources on the basis of price alone. Although prices may be low, the farmer will produce all he can as a return to fixed costs. Following the establishment of his fixed resources, he will react to price only as variable costs may or may not be justified. Land and other resources may be depleted when subjected to such disadvantaged circumstances.⁶

However, price relationships are not all of the story. Poor management, poor land, high man-land ratios and other maladjustments may accentuate the unfair price situation to the extent that conservation is practically impossible. Also, institutional barriers may either

prevent good management or nullify the results of good management, such as customary inheritance practices and poor landlord-tenant relationships and contracts.

Accepting the price pattern, particularly as it is conditioned by interregional competition, the conservation planner must recognize the situation when recommending conservation programs. For example, grass farming may check erosion but should not necessarily be recommended. Even grass farming and pastures may require fertilization to such an extent that a given farmer may not be able to finance the practice. Recommendations to raise certain erosion-resisting crops should be made only after a market for them is assured and when it is certain that other areas do not have superior advantages in producing these particular crops. In other cases the shift to less intensive crops will mean an increase in area of the farm which may not be economically or even physically feasible. In still other cases a particular area may be suitable for several types of production with possible alternatives. It is axiomatic that the enterprise combination should be selected which will produce the greatest net long-time returns, the cost of conservation being taken into account. But planners, thinking only in physical terms to prevent erosion, may ignore the economic consequences of idealized land use measures.

conservation will be feasible. Variable costs, on the other hand, are those current production costs such as fertilizers, sprays, and hired labor for current production which may be varied within the current production season.

⁴ In order to prevent misunderstanding it should be noted that *fixed costs* here and in the diagrams are the practical fixed costs of the farmer, including depreciation, obsolescence, contracted obligations, soil erosion, depletion control, and similar items which may be delayed for short periods only. For obvious practical reasons such fixed costs do not include a return to unencumbered investments and the earnings of management and unpaid family labor (above the minimum requirements) which may or may not actually receive a return in a short time. Hence, the argument may appear unorthodox to theoreticians, particularly the contention that all costs must be covered before con-

⁵ It is possible that a small tract of land might be so disadvantageously located or for other special reasons be so unprofitable to use, except by exploitative methods, that no potential cost-price relationship would permit conservation. A small, remote island in the sea, for example, might produce profitably for a short time under exploitative practices. Such a very special case would closely resemble the mining of subsurface resources. Joint benefits and future value would preclude practically all land from such a classification.

The above principles may be illustrated by the recommended shift in the eastern and southern portions of the country from cultivated crops to grass farming and longer rotations to check erosion. However, it is difficult to organize grass-consuming livestock enterprises on the present small farm units and expect to obtain an adequate level of income. In many parts of the South the maintenance of grazing is comparatively expensive even though the size of the units is increased. Techniques to achieve a maximum of conservation with established types of farming appear to be the more feasible solution of the erosion problem.

One of the most common problems encountered when planning for soil conservation is a badly-managed farm business. Low incomes are often due to weak management. Fertilizer and lime are not applied, buildings are neglected and seed for cover and green manure is not purchased. These expenses for maintenance may be neglected in favor of consumption.

Among the management factors the size of the farm business may be a most important factor in making conservation possible. Eastern and southern agriculture, in particular, is burdened with a high proportion of small farms which operate at a disadvantage compared with larger mechanized units elsewhere. With low incomes it is only natural that conservation involving money outlays be neglected or omitted. Table I shows this: With the costs of a modest conservation program ranging from one-half to more-than-farm income, it is impossible to talk of "economic feasibility" unless higher incomes are immediately available as a result of the conservation program.

¹ U. S. Census of Agriculture, 1939 (Including West Virginia, Virginia, Kentucky, Tennessee and North Carolina).

The example of the three farms shown in Table I is not an isolated one. More

TABLE I. CONSERVATION COSTS AND INCOMES ON THREE SELF-SUFFICIENT FARMS IN WEST VIRGINIA* (Five-year averages per farm)

	Farm		
	A	B	C
	\$	\$	\$
Annual conservation costs ¹	71	50	77
Total family earnings.....	119	440	598
Farm income, excluding charges for family labor.....	- 20	92	108
Non-farm income.....	—	58	355
Value of perquisites.....	139	290	135
Crop land per farm (acres).....	22	18	18
Animal units, per farm.....	6	10	10

* Source: "Economics of Soil Conservation," W. Va. Expt. Sta. Bul. 305, pp. 36-40.

¹ Amortized for a 10-year period. Maintenance probably will be as much as the amortized initial cost.

than 38% of the 1,052,954 farm units in the 5 Appalachian states are subsistence farms producing an average of only \$323 worth of farm commodities (including perquisites) and the operators do off-farm work for less than 100 days per year. Farms average 54.6 acres and have an average of 12.9 acres of crop land, and even this plot is often physically unsuited to cultivation, badly depleted, and eroded.⁷ The census data are corroborated by survey figures. A study of more than 1,000 rural families in central West Virginia indicates that 63% of them realized gross incomes in 1940 (from all sources except relief) of less than \$500.⁸

To increase income the farmer might conceivably intensify his operations or enlarge the land area of the operating unit. Unfortunately, the possibilities

⁷ E. C. Weitzell and L. F. Miller, *Forest Land Utilization in Nicholas and Webster Counties, W. Va.* Agr. Expt. Sta. Bul. 309, p. 19.

for intensive types of production in the hill areas are very limited. Where farming is feasible at all, operating units of a size adapted to cattle- and sheep-raising must be established in order to produce incomes sufficient to justify reasonable expenditures for rehabilitation and conservation of land resources.

Another objection to expansion may involve the lack of capital funds and a desire not to borrow. Perhaps it would be better to borrow for expansion to a profitable size than to continue diminishing the business by disinvestment. Presumably, credit will be profitable if the program to be financed is economically feasible at the available interest rate. Additional investment may be the only medium through which soil conservation is possible.

On the other hand, one of the principal problems encountered in obtaining conservation on the larger livestock farms of West Virginia⁹ is the lack of income resulting from a very extensive use of land resources. Lands having a potentially high production rate have been allowed to deteriorate until current production will not justify additional capital investment. Depending on the comparative response of these lands to rehabilitation treatment, the problem is one of developing a rate of production and, in turn, a level of income which will justify the costs of conservation.

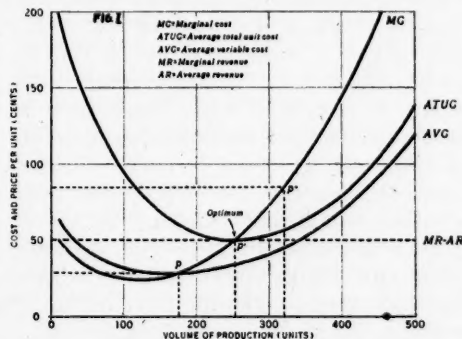
⁹E. C. Weitzell, *Economics of Soil Conservation in West Virginia*. Unpublished portions of a thesis presented to the University of Wisconsin, 1943. See also W. Va. Agr. Expt. Sta. Bul. 301, pp. 25-30.

¹⁰W. W. Wilcox, "Economic Aspects of Soil Conservation," *Journal of Political Economy*, October 1938, p. 704.

¹¹Refer to footnote 5 for an explanation of fixed and variable costs as the inclusions which constitute the cost schedule. It is clear that these schedules include only the farmers' practical costs, leaving unencumbered capital, land, and entrepreneurship as the residual claimants. Thus, these schedules approximate the usual cost-returns analysis of farm management workers. Inasmuch as conservation costs must be considered as fixed costs if the resources are to be maintained, they would not be included in the marginal or variable cost schedule. Hence, unless the return is at least equal to optimum average total costs, there will be

Following the selection of physical size and enterprises, labor and working capital (variable expenses) should be applied as intensively as expected prices permit. Wilcox states that, "if marginal returns equal marginal costs, taking into account changes in asset value, informed farmers will maintain or conserve their soil assets."¹⁰ A modification of this principle reveals the economic character of the farm business which permits farmers to conserve resources.

An operator may produce for marginal costs but, if marginal or average returns are less than average total unit cost, income is below the total cost of production and some resource is not being compensated as a factor of production.¹¹ Under such conditions land is likely to be exploited because of the absence of "self" direction and the lack of opportunity for speedy adjustments. Figure I illustrates



the practical cost schedule facing a producer of agricultural commodities. The maintenance of all resources will be

reason to believe that the farmer will neglect the maintenance of land and improvements. The writer recognizes that the omission of an arbitrary return to capital from the fixed cost schedule is an invitation for theoretical criticism. This violation of theoretical procedure, however, is deemed justified to illustrate the circumstances of purely competitive operators who are faced with the problem of business adjustment in order to spare from current earnings the amount necessary for conservation. This may be thought of as the current exploitation of unencumbered capital, entrepreneurship, and family labor in favor of conservation, if there is no residual.

feasible at a price no less than the optimum cost (p^1). Thus, the volume of production cannot be less than 250 units at an average price of 50 cents. This permits the equation of costs and returns. All costs, including that of maintaining resources, are covered. Owing to a temporarily superior position—unusual managerial ability or higher prices in relation to costs—production could be in excess of this amount for maximizing profits in the short period. Let it be assumed that cost (MC) remains constant while price per unit of production rises from p^1 to p^{11} . In terms of the cost schedule the volume of production may be expanded to 320 units. This temporary position enables a profit until other entrepreneurs become aware of the situation and bid the factors into a new equilibrium for each effectively competing firm, which will be equal to marginal revenue (MR-AR).¹² For a short period, production may continue at a volume consistent with a price which is less than average total costs, but under these circumstances maintenance costs are neglected in favor of minimizing losses. Except under special (temporary) circumstances, production would not continue at all if price is not sufficient to cover all variable costs (p). A producer could continue at this volume (180 units) only until

basic resources are consumed or are withdrawn from the process. In order to compensate all factors of production adequately, and thus to conserve and maintain resources, marginal revenue (MR-AR) must equal marginal costs at a point no less than the optimum volume of production, or the least total cost per unit. It might be argued justifiably that, in the long run, the cost schedules would necessarily include a competitive return to land (rent) and entrepreneurship. This is merely an extension of the short-term analysis (presented here) into the long period, with additions to the cost schedules. The cost requirements which must be met before conservation can be feasible will be raised accordingly.¹³

Suppose that average total costs continue to be greater than average revenue and that land resources are being exploited. (Time preference for consumption will usually mean that land resources will be exploited quicker and to a greater extent than other assets.) There are two possible recourses: (1) It may be possible to adjust the size of the operating unit in order to utilize some factors more intensively or extensively as the need may demand in order to achieve lower costs per unit. (2) If the marginal efficiency of all factors in the current production program has been maximized, the only alternative is to

¹² For the purpose of this analysis it has been assumed that circumstances of this character only will result in returns to land (rent), and to entrepreneurship, and even to family labor—except for accepted minimum living costs which must be included as fixed costs. Thus, the term "fixed" refers to the fact that certain costs do not vary during and even between cropping seasons; while "variable" means that certain other costs differ with the intensity of operation which may be justified by demand developments during and between production seasons. Again, this may be disturbing to the reader who has been disciplined to think only in terms of dividing costs into these categories on the basis of whether they must be met during the "short" or the "long" period.

¹³ It is argued that Figure 1 must be limited to a firm having a single enterprise. This is unnecessary, however, inasmuch as it is designed as an optimum adjustment curve derived by reducing two or more analytical enterprise

schedules to a single cost-returns schedule representing the entire firm. The further argument that the feasibility of conservation for the individual farm cannot be illustrated by cost-returns relationships of this type depends on what is included as costs (See footnote 5). The justification of conservation on the basis of whether value is added to the resources or not would anticipate more than the maintenance of production. Since the cost schedules in question were not intended to include land rent, any increase in productivity as a result of conservation measures might be credited to land and the other factors excluded. However, if rent and entrepreneurship demanded an arbitrary return, they would necessarily be included in a long-period curve. The short-time optimum adjustment curves presented here purport to show the business adjustment requisite to conservation, involving only short-time practical considerations. It is not intended that they represent a procedure for evaluating the economic justification for specific conservation measures.

shift to a new type of production having a greater comparative advantage in utilizing one or more factors. Such shifts presumably would have been justifiable at higher prices but become more urgent and imperative at lower prices.

In the absence of the possibility of continued production of any type which will permit conservation, land must revert to a use other than agriculture. This may mean commercial forestry or simply idle use of some type. It may not be worthwhile to protect it from erosion and associated damages, depending on the joint costs and benefits involved—including the desirability of maintaining a reserve supply of currently submarginal land for possible future supra-marginal use. This is a matter for society to determine and to finance, and is not a function of the private entrepreneur. Of course, in instances where there is only one possible use, and this use can be pursued only through exploitative methods, there is no alternative but to use it to the point of exhaustion. It is assumed that the joint costs of depletion are such that they do not prohibit this one use. For example, certain types of land may necessarily be consumed in the process of arable utilization (similar to mineral deposits). In the case of the Florida Everglades and similar organic soils, the water level is lowered to permit cultivation. This permits rapid oxidation of soil material and, after a time, productivity may be more or less permanently impaired.

Another variation of this circumstance would involve higher relative prices which would encourage certain types of production on land unadapted to the particular use. It is possible to conceive that the price being paid for corn or wheat, in relation to that obtainable for the product of the adapted use, might be so high as to justify owners in

producing corn or wheat even though soil resources were being impaired permanently. This concept is discussed more fully below, in connection with Figure V. Depending on the social costs involved, certain controls may be necessary in order to align private action of this type with that of society.

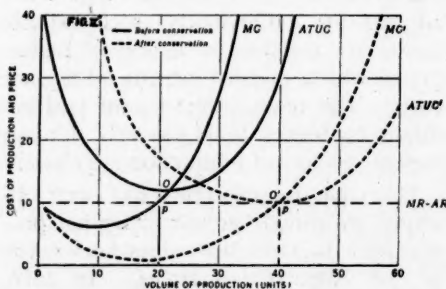
Excepting these special cases, and assuming a reasonable adjustment between social and private interests in resource utilization and in the adaptation of production types to available resources, it is possible to visualize even more than merely the maintenance of productivity. If prices assume a permanently higher position than has prevailed in the past, in relation to costs, it will be feasible to build and maintain productivity at a higher level and to expand output accordingly. Likewise, higher relative prices or lower costs may permit changes in the organization, types of production, and levels of production, depending on the comparative advantages of the cost-price relationships characterizing the several possible adjustments. Obviously, such adjustments are possible by reason of higher prices which in turn permit additional costs. The new optimum cost position might be higher than formerly if more expensive types of production are chosen.

Dairying, for example, has been observed to provide greater marginal productivity to land than does beef cattle in the Appalachian states. In turn, dairy farmers more generally adopt soil building and conservation practices. They do it for a very real reason, which is none other than the greater intensity in combining land, labor, and capital which is justified by dairy farming over certain other types. This is not to contradict the general fact, however, that most general and livestock farmers throughout the eastern hill country would

be justified in maintaining a higher level of productivity than they have.¹⁴ This is particularly true since a number of most fruitful practices cost little, except the labor and management which a good land husbandman would find worthwhile.

The problem of making additional investment to cover past depletion is somewhat different. In order to permit maximum operating intensity and desirable enterprise combination, substantial costs may be necessary for resource rehabilitation in accord with capitalized or potential productivity. The aim is to maximize production efficiency in an effort to cover all costs, including resource maintenance. Many farms have been capitalized on the basis of productivity which former operators have depleted. Consequently, the additional investment which is necessary to regain the potential response may be a burdensome outlay for the time being.

Figure II illustrates the cost structure of a farm business before and after



achieving a status which will permit conservation. For this purpose a fixed

unit of land having a potential productivity of 40 animal units is assumed. By reason of past poor management and depletion, current production is limited to only 20 units of a specific quality. Thus, the operator is forced to limit production to 50 per cent of potential by reason of sharply rising variable costs which, as marginal costs (MC), quickly equal marginal revenue (MR-AR). At this point—the best possible adjustment under present resource conditions—it is impossible to cover all costs (ATC). As a result, some factor must receive less than its actual cost and, since land may be exploited without withdrawing from the productive process, it is the first to be neglected.

To achieve conservation it is necessary to equilibrate prices (MR-AR) and marginal costs (MC) by making a fixed expenditure for rehabilitating productivity which has been depleted in the past. This added investment, which permits an expansion of production, results in a shift of the cost curves downward and to the right (Figure II). The steeply rising marginal cost schedule (MC) is replaced by a more gently rising curve (MC¹), which intersects the new average total cost curve (ATC¹) and the marginal revenue curve (MR-AR) simultaneously at 40 units of production.¹⁵ The fact that all costs are covered when operating on this basis means that: (1) under the given price and with the given capital this farm is operating at maximum economical or optimum volume of production; and (2) the volume of income is sufficient to

¹⁴ In fact, the outstanding management problem in West Virginia livestock farming was found to be a lack of operating intensity. Land is used so extensively because of the currently low state of productivity, or for other reasons, that additional investments in land are not justified on the basis of present production levels. Previous excessive capitalization and the failure to appreciate the possibility of higher production rates deters land rehabilitation and conservation. See unpublished portion of thesis (E. C. Weitzell, *op. cit.* pp. 157-169).

¹⁵ An additional observation must not be overlooked. All of this reinvestment does not show up in the current operating cost schedules. The amortization of this reinvestment may mean that for a period of years (perhaps as much as 8 or 10) the increased productive value resulting from conservation may not equal the total cost of reinvestment and maintenance. Reinvestment is made on the basis that enhanced future value will compensate for temporary deficiencies and maintenance.

cover all costs of the business, including resource maintenance.

A decrease in prices under similar circumstances would again reduce the business to a submarginal level of operation, and depletion would be inevitable unless reserve income were available. Additional adjustment would not be possible, assuming that the maximum capacity of the land had been reached in the former capitalization; i.e., additional units of capital invested in raising the level of productivity would not be justified in terms of additional production equal to or greater than the costs.¹⁶ Incidentally, at this point it is clear that the feasibility of additional investment does not depend on the ratio between receipts and expenses, but whether additional units of capital would yield additional net returns.

It must be recognized, however, that not all land has greater potential production. In some cases the original productivity was not sufficient to justify the original investment. In others, the response to treatment is not sufficient to justify soil-building expenditures. There is no feasible recourse except to permit such lands to revert to some less intensive use with a possible partial loss of the original investment.

In any one of the alternative adjustments it is essential to produce more economically in order to adjust the costs to coincide with given price situations. The possibility of a public program aiding in this adjustment may be realized by: (1) discouraging continued misuse and inefficient use of land and changing to alternative uses for land, or discouraging agriculture where expedient; (2) changing the methods of culture and the type of farming according to comparative

costs for different enterprises; (3) encouraging changes in size of units or adjustments in the intensity of operation; and (4) providing suitable institutional controls and assistance for preventing unnecessary exploitation and for reducing costs. Thus it might be possible for marginal or even slightly submarginal farmers to rise above the margin and operate on a more secure basis.

The necessity of sufficient income to cover the cost of conservation introduces the problem of continued production from which the return is less than the cost. It might be argued that over a long period of time marginal productivity would be returned to all the factors of production. The fallacy here lies in the fact that land is not withdrawn from the productive process when it is not paid the cost of maintenance. It is forced into production until it is eroded and depleted to the extent that its resources cannot be renewed within any reasonable period of time. Therefore, land may not be paid its marginal productivity, to say nothing of the cost of maintenance.

It probably will be well to point out two possible conditions which would not be consistent with the preceding discussion, yet be legitimately permitted for the very short period; that is, the period of "effect" would be short enough so that readjustment of the business would be inadvisable.¹⁷

The first is a case where marginal revenue is not sufficient to cover all costs at any volume of business; yet the farmer would continue to operate, expecting a revival in price, before attempting business reorganization or liquidation. In this case the object of continued operation would be to minimize losses. Such a procedure would be

¹⁶ This situation becomes very real during a prolonged depression in farm prices. The farmer has no alternative but to reduce the level of conservation.

¹⁷ These are short-period losses in terms of business decisions and do not include a consideration of losses resulting from subsistence pressure.

justifiable as long as marginal revenue is greater than marginal variable costs (excluding costs of conservation). Any return in excess of variable costs could be considered as a partial payment of fixed costs. Thus all fixed costs would not go unpaid; as would be true were the business to cease production entirely for the duration of the depression in the price level. It would be expected that any disinvestment that took place during a period of this type would be replaced by reason of expected future income.

The *second* variation in the conditions under which farmers would be unable to conserve, yet would not readjust, is the continuation of the first. Price is so low for the time being that variable costs are a total loss and returns are insufficient to cover fixed costs. Yet production is continued in order to be ready for a quick recovery when prices again are favorable. These conditions might characterize a particular year's production of any commodity which is subject to sharp cyclical price conditions. If production ceased during the poor years, it would be impossible to take advantage of greater possibilities in succeeding years. Hence, the losses are accepted during the periods of low prices in order to take advantage of the good seasons. Again, it is obvious that the good years must make possible returns sufficient to cover all losses in the off years, as well as current operating costs, if production is to be justified.

The possibility of operating at such short-time losses obviously depends on the extent to which resources would be depleted or destroyed. Such a procedure would not be possible beyond the point which will permit rehabilitation. In

other words, depletion and erosion may become so severe as to reduce seriously the ability of the soil to respond to fertility-building practices. This might be referred to as the "breaking point" in soil depletion.¹⁸ Beyond this point soil rehabilitation may not be economically feasible for agricultural purposes. Insofar as the process of rebuilding soils is dependent upon economic feasibility, the breaking point may vary with the demand (price level) for agricultural production. The physical problem of rebuilding soil which has been destroyed (beyond the breaking point) is largely a matter of time, since the natural production of soil is an extremely slow process.

A question which frequently arises is whether expected higher prices will encourage or discourage conservation. This question is basic to our contention that higher incomes may be necessary to make conservation feasible under certain circumstances. On the basis of the view expressed in Part I¹⁹ of this discussion it is undoubtedly true that higher incomes will be requisite to conservation up to the point of fulfilling the elemental consumption desires of the people in some areas. Obviously, this point is moot, depending on the accepted level of living. It can be assumed safely, however, that a level of income in excess of that required to satisfy usual current consumption is reached by commercial farmers. The question is: Will additional income, as a result of higher prices, encourage or discourage the maintenance of productivity? In trying to answer this question two assumptions have been made: (a) the profit motive is controlling; and (b) the business units concerned are already operating with an optimum adjustment between practical costs and re-

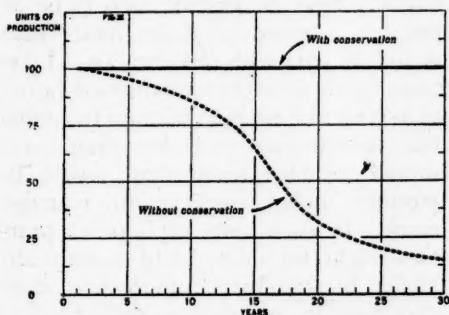
¹⁸ Schickele uses the term "breaking point" to describe the "point . . . where the rate of decline [in natural soil fertility] begins to increase materially." Rainer Schickele,

Economics of Land Use Adjustments, Iowa Agr. Expt. Sta. Bul. 209, Ames, 1937, pp. 365-369.

¹⁹ This *Journal*, *op. cit.*

turns. It has already been shown that this adjustment will be requisite to the feasibility of conservation. The aim now is to indicate what entrepreneurs might do when available returns are greater than the minimum necessary to the economic feasibility of conservation.

In order to analyze this problem, a schedule of productivity with and without conservation has been assumed (Figure III). For purposes of this analysis,

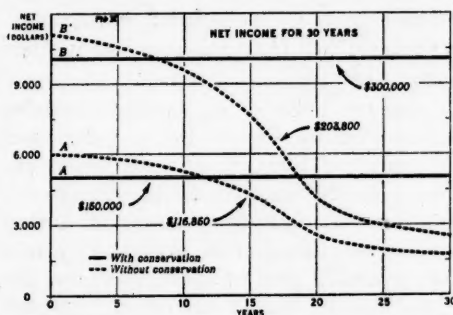


conservation (by definition) would result in a constant annual physical production, while continuous exploitation would result in slowly declining productivity followed by an accelerated decline, with a tendency for productivity to level off at a low yield after 25 to 30 years of depletion. If the decline is largely the result of erosion, productivity might decline to zero.

The application of net value figures to this physical production schedule permits the charting of the net income streams presented as Figure IV. Curves A and A' represent probable net income streams for a unit of farm land operated with and without an adequate system of conservation at a relatively low price level. Both income streams are based on the physical production schedule illustrated as Figure III. It may be noted that exploitive farming is slightly more profitable for about 12 years, but that over a reasonably short period of time

(30 years assumed) the total net income (not discounted) is 28 per cent less.

Curves B and B' represent greater income streams, with and without conservation, resulting from higher prices, and more intensive production made possible by the higher price level. For this comparison it was assumed that the cost of conservation under either price level was \$1,000 annually. Hence, both net income streams without conservation (A' and B') are enhanced to the extent of this sum, in addition to the net value of production. Insofar as Figure IV is concerned, this item of cost (which



was not paid) accounts for the additional net income realized for a few years by exploitation over and above that income which would be possible with conservation.

Although net incomes without conservation are seen to be higher for a few years under either price level, it is clearly shown that higher prices over a short term of years should encourage conservation.²⁰ Two significant facts are to be observed: (1) the comparative loss in net income without conservation is 10 per cent greater for the 30-year period under the higher price level;

²⁰ See H. Hotelling, "Economics of Exhaustible Resources," *Journal of Political Economy*, April 1931, for an analysis of the effect of higher prices on the feasibility of conservation under monopolistic control.

and (2) the period during which exploitation would yield a greater annual income without conservation would be shorter if the higher prices prevailed. Both are the obvious result of a more rapidly declining income stream under the higher prices, assuming physical production to vary only as a result of the more intensive application of those factors not contributing to conservation and the rehabilitation of soil productivity. Thus it is clear that expected higher prices should encourage farmers to practice conservation. In fact, higher relative prices for farm products should induce farmers to increase soil productivity, rather than to be satisfied with maintaining it (with exceptions noted at other points herein).

On the basis of the income schedules illustrated by Figure IV, a compound discount of five per cent of future income would not alter the preceding conclusions significantly. The period during which exploitation is profitable would be extended two or three years by discounting all future incomes. But the relative profitableness of conservation over a longer period would not be altered substantially. For example, the undiscounted total net incomes for schedules B and B¹ (Figure IV) are \$300,000 and \$203,800 respectively; a ratio of 1 to 1.47. Discounting these income streams at five per cent (compounded annually) the total present value of future incomes over the 30-year period is \$153,921 for B and \$123,926 for B¹; a ratio of 1 to 1.24. The effect of the discount on future incomes emphasizes the fact that expenditures for conservation must be justified in terms of additional returns that are made possible. It is quite evident that a substantially higher rate of discount on future incomes, under certain circumstances, might eliminate the justification for conservation. This might

be particularly true of remote benefits such as forest production.²¹

The foregoing comparisons are based on the double assumption that: (a) physical productivity under exploitative practices would not be greater at any point in time than under conservation; and (b) there is a moderate discount of five per cent. These are not necessarily valid assumptions. For example, the exploitation of grazing lands might permit the grazing load to be 50 per cent greater for a few years than would be true with conservation. Likewise, continuous corn production rather than corn in a rotation of crops including hay (which may yield less than corn) should produce more than would be possible under conservation management. In such cases exploitative practices might, for a time, yield substantially higher income than conservation management—in addition to the "cost" of conservation which would not be expended.

Let it be assumed, for example, that a 100-acre tract of grazing land would carry 100 animal units under conservation management, at a net income of \$50 per unit or a continuous total of \$5,000 for the 100-acre tract. By ignoring the maintenance of productivity the same tract might carry a much higher number of animal units for a relatively short period (Curve B¹, Figure V). Thus, assuming the same net returns per

²¹ An additional consideration in favor of conservation should not be overlooked in evaluating the comparisons presented in Figure IV. In addition to the higher discounted incomes resulting from conservation, the capital resource is maintained. Assuming that exploitation for 30 years will reduce yield to a more-or-less static low level (Curve B¹) the income received in the thirtieth year might be capitalized to give the value of the capital resource at that point. Thus, capitalization of the thirtieth year net income at five per cent produces the following capital value comparisons:

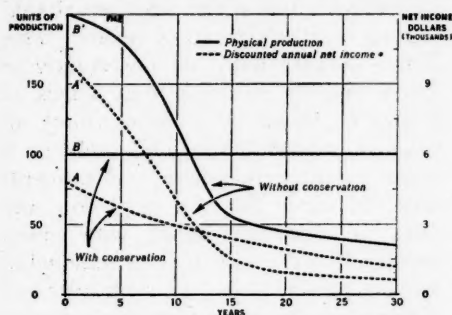
	Stabilized income	Discount rate	Capitalized value
With conservation . .	\$10,000	.05	\$200,000
With exploitation . .	2,500	.05	50,000

animal unit (\$50) and the saving of the cost of conservation (\$500) annually, income as a result of exploitative practices might be substantially greater for approximately ten years than would be true with conservation. In fact, the total net undiscounted income (at \$50 net

possibility of depleting one farm and of then moving on to new land characterizes this situation.²² (2) Higher discount rates on future income, resulting from any one or a number of factors heretofore observed, may eliminate the entrepreneurial justification for maintaining resource productivity under plausible circumstances, even where lower rates would permit it. It is entirely possible that circumstances of this type may permit a complete disregard for the depreciated value of basic resources resulting from exploitative management.

This problem is commonly observed where one generation of farmers has no interest in conserving land resources for future generations. Consequently, the future is heavily or totally discounted in favor of the highest total consumable earnings during a single generation. It is under circumstances of this type that institutional aids to conservation are of striking value. With the economic justification favorable, the practice of passing unencumbered productive lands on to children has been indicated previously as a fruitful means of achieving conservation. On the other hand, society may deem it essential to enact legal restrictions on the exploitation of resources by a single generation having no interest in posterity.²³

Throughout this discussion the dependence of conservation on a long-time interest in specific resource productivity has been observed. Anticipated future incomes must have a current (present) value equal to or greater than the present costs if conservation is to be feasible. Consequently, if farmers are to justify a maximum level of conservation they must be interested in the same resources



* PRESENT VALUE NET INCOME FOR 30-YEAR PERIOD USING 5 PERCENT COMPOUND INTEREST
U. S. DEPARTMENT OF AGRICULTURE REC. 4132 BUREAU OF AGRICULTURAL ECONOMY

per unit, plus and minus the cost of conservation) based on assumed physical production schedules B and B' are almost identical for the 30-year period. Consequently, if the net income schedules are discounted at five per cent the justification for conservation is eliminated, insofar as annual earnings are concerned. In this instance the discounted net income with conservation is only 80.7 per cent of the discounted income without conservation.

Since the above analysis is based on assumed situations it is impossible to draw specific conclusions. On the other hand, there are two important facts to be observed: (1) Situations of the type assumed are not uncommon in an expanding and varied economy wherein alternative higher earnings and the lack of dependence on a specific resource for long periods may encourage the immediate highest possible earnings. The

²² A. C. Bunce, *Economics of Soil Conservation* (Ames: Iowa State College Press, 1942), p. 64.

²³ Compulsory land use regulations authorized by the respective state enabling acts is the outstanding attempt to

employ the police power for enforcing soil conservation. Rural zoning ordinances represent a similar type of social control. Practice subsidies are merely variations of the same concept.

over a period of time long enough to realize a maximum of the benefits thereof. When we realize that, in 1940, 63 per cent of all farm tenants and 22 per cent of the owner-operators in the United States had been on the farms they were then farming for less than five years, the problem of conservation becomes still more complex. More than 33 per cent of the tenants and 8 per cent of the owner-operators had been on their farms only 15 months.²⁴

There are three main reasons why farm tenancy in the United States is often charged with encouraging soil depletion rather than conservation. *First*, many landlords are unwilling owners, having gained possession of farms through debt defaults, inheritance, and other means. Being unable to sell them at a price considered adequate they proceed to glean as much from them as possible by exploiting both the tenant and the land. Still others own land as a hobby, some of whom do not prefer to tie up much money but hold on to it as a matter of security. The people of this country still have an urge to own land as assurance against the uncertainties of other income sources.

Second, the customary short-term leases which have dominated tenancy in most of the states discourage tenants from having an interest in the same land for a time long enough to justify numerous conservation measures. Tenants, like many land owners, have developed the philosophy of exploitation and have not been taught the advantages of land husbandry. Their aim is to reap all they can in a short period and then to move on. Only occasional landlords have been willing to provide leases covering a period long enough to enable tenants to realize the benefits of soil management practices. Leasing provisions for assuring

tenants just compensation for unliquidated portions of investments made in the interests of conserving either land or improvements have been infrequent.

Third, the division of income among two or more claims leaves each claim with only part of the justification for conservation unless the costs are shared directly by all recipients of income. This factor together with the uncertainty of future benefits resulting from a lack of long-term leases is a strong force in favor of exploitation. The problem is acute particularly where reinvestments must be made for past depletion and must be amortized along with maintenance in order to achieve a reasonable level of productivity. In such instances the period during which conservation will cost more than enhanced current returns will justify is lengthened, insofar as individual incomes are concerned, by reason of the fact that income is shared. The solution is to fix the responsibility for conservation according to income received (assuming the minimum consumption demands of all parties are met and that incomes are equitably shared) along with the means for realizing the benefits therefrom, or to place the responsibility on one or the other parties with favorable leasing provisions.

The reasons for owning land and the provisions for its operation are forceful factors in conservation management. All of these so-called institutional factors tie back to the income motives. Tenancy *per se* is not a cause for a lack of conservation, depending on leasing arrangements. Family farm-owner operation is not necessarily the answer. Tenancy may be the result of depletion under owner-operation, as well as the cause. Small operating units, uneconomical organization, poor management, misuse of land, high cost-price ratios, inertia, and ignorance are all factors which may be

²⁴ U. S. Census of Agriculture, 1940.

jointly or singularly resulting in circumstances which prohibit or discourage the maintenance of soil productivity. Furthermore, it must be realized that these negative forces must be eliminated before positive action will be of lasting benefit. Publicly subsidized physical measures serve only as a temporary stimulant unless the source of the ill is properly diagnosed and cured. The problem of low incomes as a result of small operating units cannot be solved for long by building dams and terraces, or by supplying lime and fertilizer. These investments must be maintained and, if the necessary income is not forthcoming under favorable circumstances, repeated depletion will occur.

In summary, it should be clear that certain physical measures designed to achieve conservation are not necessarily feasible for application by a private

entrepreneur. Conservation is a problem of the business of farming just as obsolescence and repair are problems of the textile manufacturer. Soil is not conserved for its own sake but for the enhanced long-time earnings that conservation may make possible. In an economy of private enterprise, certain circumstances may justify entrepreneurial exploitation just as certainly as different circumstances may induce conservation. Hence, institutional and business adjustments may be requisite to economically feasible resource maintenance. In this behalf, society has the responsibility of providing a framework within which farmers may operate economically. In turn, farmers have the responsibility of caring for non-substitutable and irreplaceable land resources in order that future generations may share the bounties of nature.

Adjusting Wheat Acreage in the Northern Great Plains to Wartime Demand

By RALPH E. WARD*

THE problem of wheat surpluses in the United States and particularly the Northern Great Plains has been temporarily displaced by the problem of increasing production to meet the current and postwar rehabilitation demands for wheat. The wartime and immediate postwar demands for wheat raise fundamental questions regarding methods of obtaining the needed supplies. The wheat problem in the United States now becomes one of determining how our available resources can be utilized to the best advantage to obtain increased quantities of wheat as well as other essential crops with due regard to problems of soil conservation and probable readjustments in the postwar period. This analysis is intended to throw some light on means of meeting the immediate, but probably temporary, increased demand for wheat without repeating the land use problems left in the wake of World War I.

Since more than half of the wheat acreage of the United States is in the seven northern Great Plains states,¹ and as several million acres of land formerly in wheat were idle in 1942, the possibilities and limitations of increasing the acreage of wheat in this region are of national as well as regional significance. This study deals primarily with cropland resources in the Plains and the conditions under which they can effectively be utilized. The purpose is to analyze experience in the use of land

resources for wheat production in different parts of the Plains and, on the basis of this analysis, to discuss the possibilities, limitations and probable results of increasing the acreage of wheat to meet wartime demands.

The Current Supply-Demand Situation

Consumption of wheat in 1942-43 and 1943-44 exceeded production for the first time since 1936-37. This demand may continue at a high level for at least a year after the war, depending upon rehabilitation food needs of wartorn nations. While the largest surplus on record was accumulating from 1937 to 1942, the acreage was being reduced from 81 million acres in 1937, the largest on record, to 53 million in 1942, the smallest since planted-acre records were started in 1919. The large stocks of wheat on hand in 1942 were the result of exceptionally high yields on a relatively small acreage and the small quantity of exports. The total utilization of wheat in the United States from July 1, 1942 to June 30, 1943 was 984,000,000 bushels, the largest on record up to that time and 38 per cent above the 1932-41 average. For the year 1943-44 the utilization was even greater. According to a preliminary estimate it was about 1,292,000,000 bushels. Despite high production in 1942 and 1943, and excellent prospects for 1944, the carry-over of wheat on July 1 declined from 632 million bushels in 1942 to 622 million in 1943 and 316 million in

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¹ The Northern Great Plains, as referred to in this study, is a combination of seven states: North Dakota, South Dakota, Nebraska, Kansas, Montana, Wyoming, and Colorado. For brevity it will be called the Plains.

1944 (Table I). The expected production in 1944 of more than one billion bushels, the largest crop on record, removes any threat of immediate shortage. The prospective utilization, however, is great and may reduce the carry-over on July 1, 1945 to 300,000,000 bushels. Thus, the wheat surplus is disappearing and the prospective carry-over next July will be sufficient to provide only for working stocks and a moderate margin of safety against low yields in 1945.

The increased use of wheat is due primarily to livestock feeding and to the manufacture of industrial alcohol. The quantity fed to livestock annually has more than quadrupled, from 117 million bushels for the ten-year period 1932-41 to more than 500 million bushels in the year ending June 30, 1944. A new use, the manufacture of alcohol, took 55 million bushels in 1942-43 and 110 million in 1943-44. The feeding of such large quantities of wheat probably will not continue after the war and the amount that will be used for alcohol cannot be accurately estimated.

Record quantities of wheat are available for export in Canada, Argentina,

and Australia. About 150 million bushels were imported from Canada for feed from July 1, 1943 to June 30, 1944. Although the surplus wheat in exporting countries is a potential supply against serious shortage, the difficulties of transportation have made it necessary to plan for greater production in the United States.

The need for greater production of wheat has called for an increased acreage and/or a higher yield per acre. More widespread adoption of the better known varieties and practices is a potential source of increase in the yield of wheat. Experience with programs of this kind over a long period of years shows that yields can be increased but that progress is slow. Shortages of labor and machinery reduce the effectiveness of improved practices, particularly the timeliness of operations. A quick improvement in farm practices or varieties of wheat which will raise yields substantially, probably cannot be relied upon as the sole method of obtaining the needed supplies. Although all possible increases on the intensive margin should be promoted, a large increase in production in a short time requires an increase in the acreage seeded to wheat.

TABLE I. SUPPLY AND UTILIZATION OF WHEAT IN THE UNITED STATES, AVERAGE 1932-41, ANNUAL 1942-44*

(unit: million bushels)

Period	Supply			Utilization			
	Stocks July 1	Pro- duction	Total	Food	Feed	Other	Total
1932-41 (average)	235	738	973	479	117	123	719
1942.....	632	974	1,606	526	305	153	984
1943.....	622	836	1,458 ¹	545	517	230	1,292
1944.....	316	1,128 ²	1,444 ²

* Data compiled from reports of Bureau of Agricultural Economics, U. S. Department of Agriculture.

¹ This domestic supply was increased by imports of about 150 million bushels.

² Production and domestic supply are estimates based on crop condition July 1, 1944.

To counteract the dwindling supply of wheat, the War Food Administration set a goal of 67 million acres of wheat for 1944, an increase of 12 million from 1943. The seeding of approximately 67 million acres in 1944 brought the acreage to the 14-year average but it is still substantially less than the all-time high of 81 million in 1937. The goal for 1945 has been tentatively set at 67 to 70 million acres, a small increase over the 1944 acreage. With average yield, the national production from 67 million acres would be 800 million bushels, about 10 per cent above prewar utilization and about 38 per cent below the 1943-44 disappearance. Thus, 67 million acres is about the same as the prewar average and therefore should not be considered as an excessive expansion.

Land Resources Available for Wheat Production and their Utilization in Recent Years

Wheat is the principal crop in the Plains and occupies about 47 per cent of the grain crop acreage. It is grown nearer the critical point of moisture supply than in most parts of the United States. In the Plains, wheat is grown in areas in which annual precipitation is less than 20 inches. Some of the northern areas have an average of only 12 to 15 inches annually. Climate and other natural hazards are such as to cause wide variations in yield and production. Probably the most widespread unfavorable conditions prevailed in 1934; while the most favorable conditions brought the exceptionally high yield of 19.8 bushels per planted acre of wheat in 1942. The Plains are remarkably stable in maintaining about 55 per cent of the nation's wheat acreage but fluctuate

greatly both above and below the average of 44 per cent of the total production.

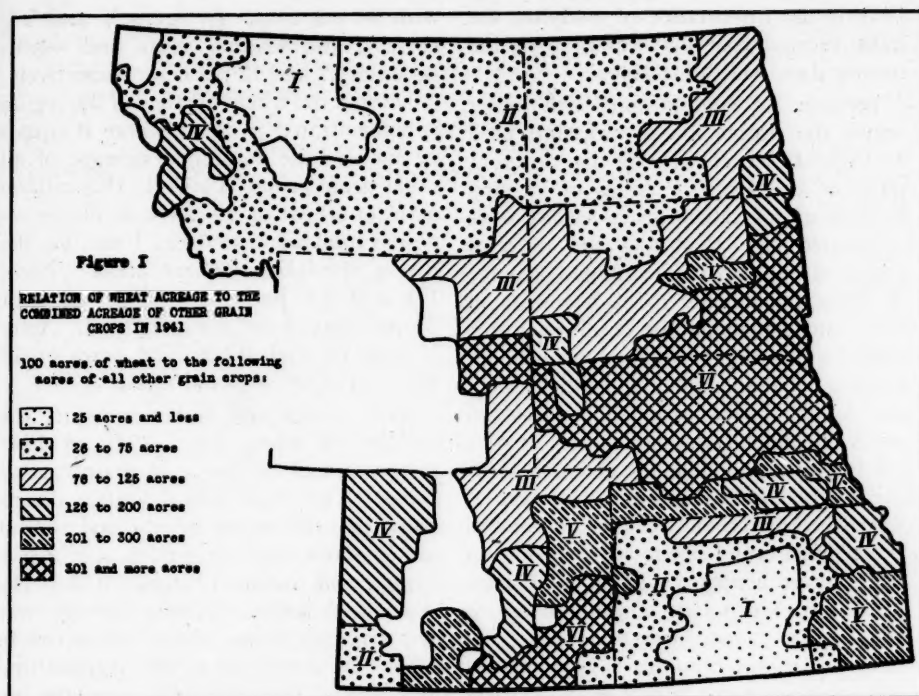
Trend in Acreage of Cropland. Land is used for crop production under widely varying conditions in the Plains states. The eastern fringe of South Dakota and Kansas and about one-half of Nebraska are part of the cornbelt, and a large proportion of the land area is used for the production of crops. Corn is the most important crop, but wheat and other crops are grown on diversified farms. West of the cornbelt fringe and east of the Rocky Mountains is a large plains area which is utilized primarily for grazing and wheat production. The western part of the region is mountainous with a small acreage of cropland and wheat.

Considering these seven Plains states as a whole, some important changes in crop acreage have occurred. The acreage used for the production of the principal crops in the Plains decreased from 101 million acres in 1932 to 85 million in 1942.² This reduction came almost entirely from grain crops, thereby reducing the proportion of grain crop acreage from 89 per cent of the acreage of principal crops in 1932 to 87 per cent in 1942. This sharp reduction in the acreage of crops occurred as a result of prolonged drought, depression, low prices for wheat and over-expansion of cropping in areas near the extensive margin of crop production.

Of the 16 million acres formerly planted to grain crops about 8 million acres had been retired, regressed or added to the summer fallow acreage by 1942 and about 8 million was idle cropland. This estimate is obtained by using information from several sources.

²The acreage of "principal crops" is a total of the planted acreage of all crops except hay and the harvested acreage of hay. The principal crops are wheat, corn, oats, barley, rye, grain sorghums, flax, tame hay, forage sor-

ghums, potatoes and dry edible beans. The first seven crops are referred to as "grain crops" and constitute about 88 per cent of the principal crop acreage. Data compiled from reports of the Crop Reporting Board, Bureau of Agricultural Economics, 1929-40 revised, 1941-42 preliminary.



Three million acres were retired from crop use in the restoration program of the Agricultural Adjustment Administration.³ About three-quarters of a million acres of cropland were purchased by the federal government and returned to a grazing use. Rough estimates of the regrassing of marginal cropland run from 2 to 3 million acres. The acreage of summer-fallow was increased substantially between 1932 and 1942, but the exact amount is not known accurately. From the above information, together with a study of the amount of idle and fallow land recorded in the United States Census, the amount of idle cropland in 1942 was estimated at approximately 8 million acres. As shown in a later section, most of the idle land

was in the central portion of the region where most of the wheat acreage is located.

Relation of Wheat Acreage to Other Grain Crops. Wheat is more widely grown and probably is more adaptable to the conditions in various parts of the Plains than any other grain crop. In spite of its wide adaptation, however, wheat acreage is also highly concentrated in some areas. The acreage of wheat is only a little less than the combined acreage of corn, oats, barley, rye, flax and grain sorghums. From 1929 to 1942, wheat acreage varied from 43 to 52 per cent of the acreage in grain crops, and in 1941 was 46 per cent, about the average for the whole period. Since the situation in 1941 was about average for the period, it was selected for analyzing the relation of wheat acreage to other grain crops. Another factor in favor of

³ The purpose of the restoration program was to assist farmers in retiring land that was permanently unsuited to crop production and in regrassing such land.

1941 is the importance of studying the most recent year for which adequate county data were available.

Because of competition with other crops, the proportion of cropland used for wheat varies greatly in different parts of the Plains. Areas of varying degrees of specialization in wheat were delineated by calculating the ratio of wheat acreage to the combined acreage of other grain crops in each county in 1941 and arranging the counties into 6 statistical and geographical groups according to these ratios. Exceptions were made for a few isolated counties in order to join them with the nearest related group. The location of these areas is shown in Figure 1. In Area I, wheat is grown almost to the exclusion of other grain crops, occupying 84 per cent of the grain acreage. (Table II) Barley, with only 6 per cent of the acreage, is the nearest competitor to wheat. In Area II, wheat occupies 67 per cent of the grain acreage; barley is the nearest competitor but with only 9 per cent of the acreage. In Area III, wheat occupies about half of the grain acreage and corn is the nearest competitor. In Area IV, wheat has 35 per cent of the acreage and corn is a close competitor

with 30 per cent. In Areas V and VI, corn is the leading crop and wheat occupies 29 and 12 per cent, respectively.

Most of the wheat acreage of the region is concentrated in areas where it equals or exceeds the combined acreage of all other grain crops. In 1941, 19.8 million acres of wheat or 59 per cent of the regional total were in Areas I and II, the highly specialized wheat areas. Areas III and IV had 9.4 million acres or 28 per cent of the regional total. Areas V and VI had 4.2 million acres or 13 per cent of the regional total.

The trends and fluctuations in the acreage of wheat from 1931 to 1941 were markedly different in these various areas. The trend was definitely downward in the more specialized wheat areas, about level for the less specialized areas, and definitely upward for the diversified areas. Wheat acreage was not reduced in the diversified areas in 1934, the first year of the Agricultural Adjustment Administration program, but was reduced sharply in the medium and specialized wheat areas. The acreage of wheat in the diversified areas increased more rapidly from 1934 to 1938 and decreased more rapidly from 1938 to 1940 than in the other areas. A com-

TABLE II. RELATION OF WHEAT ACREAGE TO OTHER GRAIN CROPS IN AREAS OF VARYING SPECIALIZATION IN WHEAT, NORTHERN GREAT PLAINS, 1941*

Areas	All Grain Crops	Wheat		Corn	Oats	Barley	Other Grain Crops
	thousand acres	thousand acres	per cent	per cent	per cent	per cent	per cent
I.....	8,931	7,488	84	2	4	6	4
II.....	18,535	12,362	67	6	8	9	10
III.....	14,243	7,049	49	16	11	15	9
IV.....	6,714	2,360	35	30	18	8	9
V.....	8,618	2,521	29	34	14	11	12
VI.....	14,839	1,724	12	43	18	16	11

* Data compiled from records of federal-state statisticians, Bureau of Agricultural Economics.

TABLE III. COMPARISON OF FLUCTUATIONS IN THE ACREAGE OF WHEAT IN AREAS OF VARYING SPECIALIZATION IN WHEAT, NORTHERN GREAT PLAINS, 1931-41*

Areas	Planted Acres of Wheat					Smallest as Percentage of Largest
	Average, 1931-1941	- Largest Acreage		Smallest Acreage		
	<i>thousand acres</i>	<i>thousand acres</i>	<i>year</i>	<i>thousand acres</i>	<i>year</i>	
I.....	8,291	9,524	1938	7,464	1940	78
II.....	14,469	15,354	1937	12,362	1941	81
III.....	7,659	8,944	1938	6,716	1934	75
IV.....	2,396	3,345	1938	1,948	1934	58
V.....	2,555	3,661	1938	1,869	1933	51
VI.....	1,960	2,491	1938	1,653	1940	66

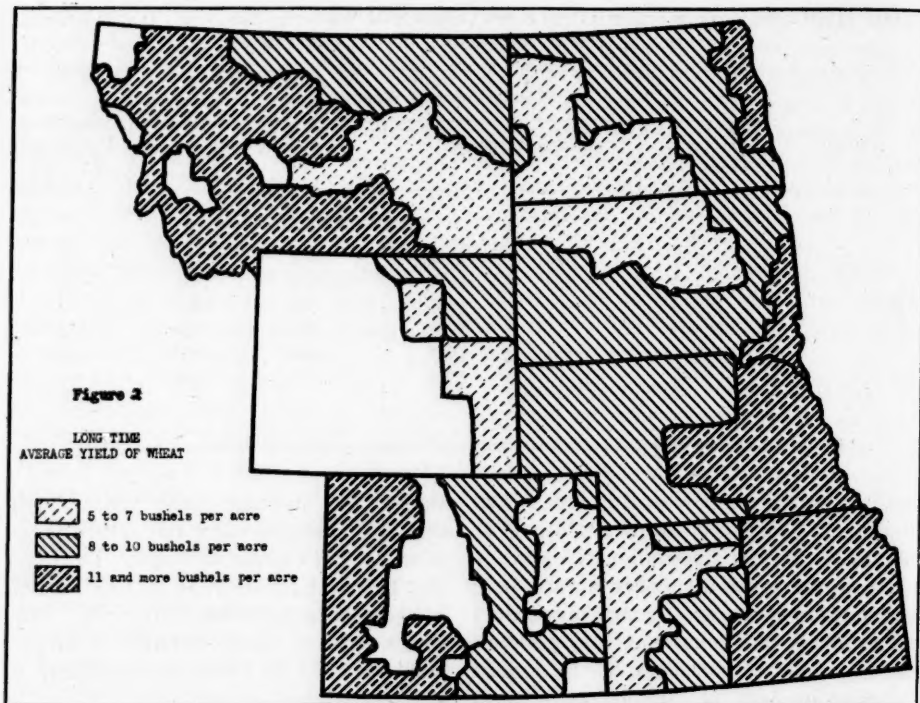
* Data compiled from records of federal-state agricultural statisticians, Bureau of Agricultural Economics.

parison of the highest and lowest wheat acreage in each area from 1931 to 1941 shows the widest fluctuations in acreage were in the more diversified areas where other grain crops are strong competitors of wheat. For example, the smallest acreage was 81 per cent of the largest acreage in Area II and 51 per cent in Area V. (Table III)

As wheat acreage was reduced, more cropland became idle in the specialized wheat areas than in the more diversified areas. In the specialized wheat areas, there are many impediments to a shift from wheat to other crops. The major use of land, kind of farm equipment, size of farm, storage, marketing facilities, and experience of the operator all center around wheat. The lack of satisfactory alternatives prevents a major shift to other crops when the demand for wheat is low. In contrast with this situation, one crop is substituted for another in the diversified areas as adjustments are made in response to changes in economic and physical conditions. Greater fluctuation in the acreage of wheat in portions of the diversified areas occurs because, in times of drought, winter wheat is a more reliable crop than corn, whereas

under the average price relationship corn will bring greater net returns than wheat when rainfall is ample. During a dry period, such as 1934 to 1939, wheat is likely to be substituted for corn. During a period when rainfall is ample, such as 1940 to 1942, corn is likely to displace wheat.

In the Plains, farmers, in selecting crops which will bring the greatest net returns, have concentrated the wheat acreage in areas that have a wide range in climate, soils, and yield. The concentration of wheat acreage in certain areas was not primarily on the basis of the best natural adaptation of wheat to the physical conditions as reflected in yield per acre. Conversely, a slight tendency toward specialization in wheat in areas of lower than average productivity is apparent. For example, Areas II and III are below, and Areas IV, V and VI are above the regional average. The exception to this tendency, however, is outstanding: Area I, the most highly specialized wheat area, is above the regional average in yield per acre. Since there is no definite relationship between the areas of specialization in wheat and the average yield, a separate analysis



of the relation of acreage to yield was made.

Relation of Wheat Acreage to Long-time Average Yield. The long-time average yield of wheat for the Plains is about 10 bushels per planted acre, but varies widely from county to county. The long-time, county-average yield of wheat varies in different parts of the region from 5 to 29 bushels per acre.⁴ Under dryland farming conditions, where most of the wheat is grown, county-average yields range from 5 to 18. For this analysis, three groupings were made as follows: counties with 5, 6 and 7 bushels per acre into a low-yielding group; counties with

8, 9 and 10 bushels per acre in a medium-yielding group; and counties with 11 bushels and more in a high-yielding group. A few isolated counties which did not conform with neighboring counties were arbitrarily attached to the nearest group. These cases were so few as to have little or no effect on the totals.

The low-yielding group of counties covers a large area in the north-central and the south-central parts of the region (Figure 2). The medium-yielding areas surround the low-yielding areas and cover large portions of the central part of the region. High-yielding areas are along the eastern border and in the western half of Montana and Colorado. Although the differences among areas are highly significant, the differences among counties near one of the dividing lines are usually small. Although the

⁴ The yield used is the adjusted county-average yield established for the 1941 program of the Agricultural Adjustment Administration and the Federal Crop Insurance Corporation. The yields are based on all available information including "key" farm records from 1930 to 1940 and adjusted for a longer period.

TABLE IV. RELATION OF WHEAT ACREAGE TO OTHER GRAIN CROPS IN LOW, MEDIUM AND HIGH-YIELDING AREAS, NORTHERN GREAT PLAINS, 1941*

Areas	All Grain Crops	Wheat		Corn	Oats	Barley	Other Grain Crops
	<i>thousand acres</i>	<i>thousand acres</i>	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>
Low yield	13,985	7,883	56	12	6	13	13
Medium yield . . .	28,991	14,257	49	17	10	12	12
High yield	28,904	11,364	39	29	16	10	6

* Data compiled from records of federal-state agricultural statisticians, Bureau of Agricultural Economics.

areas are characterized by low, medium or high average yield, there are small localities which have long-time yields that are above or below the average. The low-yielding areas, therefore, should not be designated as marginal, but they can be described as having a higher proportion of cropland which is near the margin of successful wheat production than have the medium or high-yielding areas.

In general, wheat occupies a more prominent position in comparison with other grain crops in the areas of low yield. In these areas, wheat occupies 56 per cent of the acreage of all grain crops, and in the medium and high-yielding areas, it occupies 49 and 39 per cent respectively (Table IV). Barley acreage also occupies a more prominent position in the low-yielding than in the high-yielding areas. The proportion of the grain acreage used for corn and oats varies directly with the yielding capacity. In the areas of low yield of wheat, corn occupies only 12 per cent of the grain acreage, while in the areas of high yield, it occupies 29 per cent. The corresponding proportions for oats are 6 and 16 per cent. The chief competitors of wheat in the low-yielding

areas are barley and sorghum, and in the medium and high-yielding areas the leading competitors are corn and oats.

Wheat meets its keenest competition from other grain crops in areas where its yield is the highest. The high yields of wheat in the eastern part of the region show that wheat is well-adapted in these areas. But other crops such as corn and oats are also well-adapted. In the more arid areas farther west, both in the spring wheat area in North Dakota and Montana and in the winter wheat area of Kansas and southern Nebraska, conditions are less favorable for the production of both corn and wheat, but the relative advantage shifts from corn to wheat. Thus, wheat appears to have its greatest economic advantage over other grain crops where conditions are such as to bring only medium and low yields. Wheat has occupied a large amount of land near the extensive margin of cultivation where yields become so low as to cast doubt on the advisability of cultivating the land at all. Moving toward the more humid areas, wheat meets more and more severe competition from other grain crops until the corn belt is reached and corn gets first choice on the use of cropland.

The trend in wheat acreage is significantly different in each of these yield groups for the 11-year period, 1931-41. In the low-yielding area, the trend is distinctly downward; in the medium-yielding area, slightly downward; and in the high-yielding area, definitely upward. A higher proportion of the wheat acreage of the region was on high-yielding land in 1941 than in 1931. This is due in part to the reaction from over-expansion of wheat acreage on low-yielding land which is near the margin of production. In this process of adjustment, a substantial acreage of cropland has been retired and diverted to grazing or left idle awaiting a change in conditions which would justify cropping it again. The sharp increase in wheat acreage from 1934 to 1938 in the high-yielding area was due in part to the displacement of corn by wheat during the drought. From 1938 to 1941, the acreage of wheat decreased rapidly in the high-yielding area but did not reach the former low point of 1933.

The rate of change in wheat acreage was more rapid and through a wider range in the high-yielding area than in the other areas. The smallest acreage

from 1931 to 1941 is 59 per cent of the largest in the high-yielding area in comparison with 79 per cent in the medium and 69 per cent in the low-yielding area (Table V). There was substantially less fluctuation in acreage in the medium-yielding area than in either of the other two. Wheat is grown more successfully in the medium- than in the low-yielding areas and has less competition from other grain crops than in many parts of the high-yielding areas.

The decrease in acreage of land used for crops and the increase of idle and fallow were greatest in the low-yielding areas. Data compiled from Census reports show that the decrease in land used for crops from 1929 to 1939 was 28 per cent in the low-yielding area, 20 per cent in the medium- and 10 per cent in the high-yielding area. Idle and fallow land increased 388 per cent, 276 per cent and 162 per cent for the low-, medium- and high-yielding areas, respectively. The decrease in total cropland, as indicated by the reduction in the amount reported either as used or idle, was 5 per cent, 4 per cent, and 2 per cent for the low-, medium- and high-yielding areas, respectively.

TABLE V. FLUCTUATION IN THE ACREAGE OF WHEAT IN AREAS OF LOW, MEDIUM AND HIGH YIELD NORTHERN GREAT PLAINS, 1931-41*

Areas	Planted Acres of Wheat					Smallest Acreage in Percentage of Largest
	Average, 1931-41	Largest acreage		Smallest acreage		
	<i>thousand acres</i>	<i>thousand acres</i>	<i>year</i>	<i>thousand acres</i>	<i>year</i>	<i>per cent</i>
Low yield.	9,672	11,144	1933	7,743	1940	69
Medium yield.	16,461	18,069	1938	14,257	1941	79
High yield. . . .	11,196	15,360	1938	9,096	1933	59

* Data compiled from records of federal-state agricultural statisticians, Bureau of Agricultural Economics.



Natural Hazards to Wheat Production.

In addition to determining the availability of land resources for increasing wheat acreage, the pattern of past use and average yields, the risk from natural hazards needs to be considered. This risk is indicated by insurance premiums of the Federal Crop Insurance Corporation which were based on the variability of yields from year to year.

The insurance program for wheat covered the loss from all natural hazards, the most important of which were drought, insects, plant diseases, hail and floods. Premiums were based on "loss cost" experience, that is, the amount which would have been required to pay actual losses over a period of years as determined by records of "key farms." The size of the premiums, therefore, is

the measure of variation of yields below the standard which was adopted. The proportion of the average yield which was required for the insurance premium in each county was calculated and termed the "risk factor."⁵ For example, the risk factor in a county with a 10-bushel average yield and a 2-bushel premium rate would be 20 per cent. If the premium rate were one bushel and the yield 10 bushels, the risk factor would be 10 per cent.

The risk factor varies from 5 to 35 per cent in different counties of the region. Counties with risk factors of 5 to 15 are grouped together as a low-risk

⁵ Data on county average yield of wheat and premium rates for "75 per cent insurance" were obtained from state offices of the Federal Crop Insurance Corporation. The risk factor was calculated from these data but it is not part of the insurance program.

group; those with 16 to 25 per cent, as a medium-risk group; and those with 26 to 35 per cent, as a high-risk group. The high-risk groups are in the north-central and south-central parts of the region. (Figure 3). Medium-risk groups extend around the high-risk and cover a large portion of the central part of the region and reach to the eastern boundary of South Dakota at one point. The low-risk groups are along the eastern side of the region and in the mountainous and irrigated areas along the western side.

Since premiums are based on "loss cost," which in turn is determined by the deviation of actual yields below 75 per cent of the average, a high risk factor reflects high variability in yields of wheat. The deviation from average, therefore, is great in the high risk sections and small in the low risk sections as compared with the average for the region. Where the risk is high, the probable yields extend from almost complete crop failure to 20 or even 30 bushels per acre.

In general, high risk is associated with low average yield and low risk with high average yield. The average risk factor for areas of low yield is 28 per cent as compared with 20 per cent for areas of medium yield, and 9 per cent for areas of high yield. Individual counties are exceptions. For example, Kidder County, North Dakota and Ziebach County, South Dakota both have an average yield of 7 bushels per acre, but their risk factors are 24 and 34 per cent, respectively. In spite of some exceptions, the relation of average yield to the degree of risk from natural hazards is apparent both statistically and geographically. The risk factor, although it is a new measure and probably

subject to revision, supplies a valuable indicator of the relative variability in yields of wheat in different parts of the region.

Since risk correlates closely with average yield, the analysis of acreage trends need not be repeated. It is apparent without further analysis that large areas which have a low average yield also have a high variability in yield from year to year because of natural hazards. Areas with high average yield generally have relatively low variability in yield. A high proportion of the wheat acreage in the Plains is in areas of medium to high risk. High variability in yield is found in several important wheat regions of the world.⁶

Approximate Amount and Location of Land Formerly Planted to Wheat. Recent trends in the amount of land used for all crops and for wheat in the region have been discussed and substantial reduction in the acreage of both was shown. To determine the situation by areas is more difficult than for the region as a whole, and the acreage of idle cropland can be estimated only roughly. Data from the Bureau of the Census, the only source for all counties over a period of years, shows that a high proportion of the idle cropland is in the more specialized wheat areas. Areas I, II and III, which contain 80 per cent of the wheat acreage of the region, contained three-fourths of the former cropland acreage in 1939. Areas IV, V and VI which contain 20 per cent of the wheat acreage of the region had about one-fourth of the former cropland in 1939. Since the wheat acreage was reduced from 1939 to 1942 and other crops were increased, it is probable that more than three-fourths of the idle cropland in 1942 was in Areas I, II and III.

A comparison of the largest wheat acreage since 1931 with the wheat acreage in 1943 shows a substantial reduction

⁶ V. P. Timoshenko, *Variability in Wheat Yields and Outputs*, (Stanford, California: Food Research Institute).

in all areas.⁷ The total of these area decreases is 15 million acres. If the former maximum wheat acreage were planted in all areas the same year, the amount for the region would be 15 million acres greater than in 1943.⁸ Of the 15 million acre decrease, 11.5 million was in Areas I, II and III and 4.5 million was in Areas IV, V and VI.

Possibilities and Limitations of Increasing Wheat Acreage in the Plains

The possibilities and limitations of increasing wheat acreage, as considered in this study, are primarily from the viewpoint of the use of land resources. Since wheat can be grown successfully in practically all parts of the region, the ultimate acreage possibilities are limited only by the amount of cropland available. The practical possibilities of wartime increase in wheat acreage are limited, however, by the need for other crops and the probability that scarce manpower and equipment may be applied to land from which only small amounts of wheat can be expected.

The objective should be to obtain the necessary wheat acreage in areas where wheat can be grown advantageously, where cropland resources are available and where a minimum substitution of wheat for other essential crops is likely to occur. The degree of need for wheat and the availability of manpower and equipment will eventually determine both the extensive and intensive margins of utilization of land for wheat production. There is also the possibility that some counter measures such as governmental assistance in regrassing of land near the margin of cultivation may be desirable during the war as a check on expansion of wheat acreage on land which

will not remain in production except when conditions are favorable.

Major Areas for an Increase in Wheat Acreage. Since all restrictions on the planting of wheat have been removed, the acreage is likely to be increased to some extent in all parts of the region. But it may be desirable to encourage, by educational or other programs, a greater increase in some areas than in others or to discourage an undue expansion in certain areas. If the amount of wheat machinery is limited, some basis for allocating it to the areas of greatest increase in acreage will be desirable.

Although Areas IV, V and VI show a sharp reduction in wheat acreage since 1938, the acreage of other crops, particularly corn, was increased. In spite of high yields, wheat occupies only 12 to 35 per cent of the grain crop acreage. Since other essential crops are grown advantageously in these areas, special inducements to increase wheat acreage probably would result in a reduced acreage of other crops. The danger here is that wheat may partially replace feed grains which will produce more feed units per acre than wheat. As long as wheat is being used as feed for livestock, any increase in acreage in these areas beyond the needs of a suitable crop rotation system or to utilize the limited acreage of idle cropland is questionable.

Since most of the wheat acreage and most of the idle cropland are in Areas I, II and III, the major portion of an increase in wheat acreage would be expected there. If wheat acreage is to be increased where experience shows wheat to have a relative advantage over other

⁷ The 1943 wheat acreage for all areas is assumed to be 10 per cent less than the 1941 acreage, the approximate difference between the 1941 and the 1943 acreages for the region.

⁸ The difference between the highest former acreage and 1943 is greater when determined for each area and totaled for the region than is obtained by subtracting the 1943 acreage from the highest acreage for the region, because all areas did not have their highest acreage in the same year.

crops and where a substantial acreage of idle cropland is available, the increase must come primarily from these three areas.

When these principal wheat areas (I, II and III) were sub-divided into yield groups, the largest reduction in the acreage of wheat was found in the medium and low-yielding portions. The amount of reduction from the largest acreage since 1931 to the acreage in 1943 was 4 million acres in the low-yielding portion, 4.7 million in the medium and 2.7 million in the high. (Table VI) The reduction in acreage of all land used for crops from 1929 to 1939 was 5.2 million in the low-yielding portion, 6.5 million in the medium and 1.1 million in the high. Since the data for wheat cover a different period than for all crops, no direct comparison between the two can be made. The data indicate, however, a tendency to shift from wheat to other crops in the high-yielding areas and

from wheat to idle cropland in the low-yielding areas.

High and Medium-yielding Parts of Specialized Wheat Areas. In Areas I, II and III, wheat has demonstrated its comparative economic advantage over other grain crops by occupying 49 to 84 per cent of the grain crop acreage. The best wheat-producing portions of these principal wheat areas are those with highest yields of wheat (Figure 4). In addition to high yield, production is relatively dependable as shown by a risk factor of only 9 per cent. An increase in wheat acreage in the high-yielding portions would bring large returns in wheat from the use of available cropland and should be given a high priority for the use of scarce machinery. The acreage of idle cropland, however, is small. Although the wheat acreage in 1943 was 2.7 million acres less than in 1938, the land used for all crops was only 1.1 million acres less in 1939 than in 1929. Since the acreage

TABLE VI. DECREASE IN ACREAGE OF WHEAT AND OF LAND USED FOR ALL CROPS, LONG-TIME AVERAGE YIELD OF WHEAT AND RISK FROM NATURAL HAZARDS IN PRINCIPAL WHEAT AREAS OF THE NORTHERN GREAT PLAINS

Areas	Decrease in Wheat Acreage from High Point to 1943 ¹		Decrease in Land Used for Crops from 1929 to 1939 ²		Average Wheat Yield ³	Risk Factor ⁴
	thousand acres	per cent	thousand acres	per cent	bu. per acre	per cent
Total I, II & III ⁵	11,491		12,926			
Low-yielding..	3,995	38	5,265	28	5-7	28
Medium-yielding.....	4,753	31	6,559	24	8-10	20
High-yielding..	2,743	28	1,102	8	11+	9

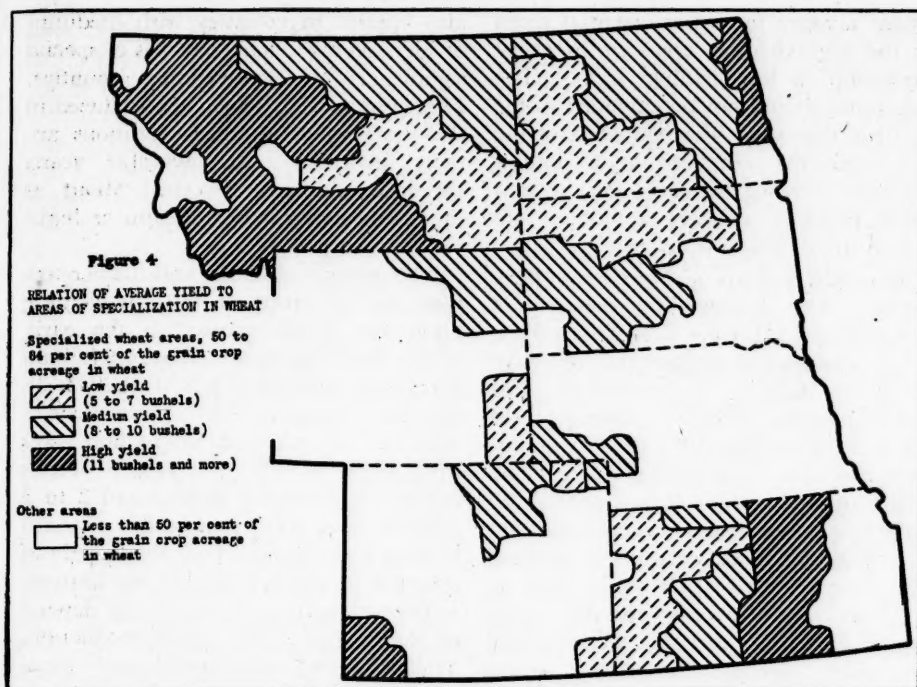
¹ 1943 wheat acreage estimated 10 per cent less than 1941 in all areas.

² Compiled from report of Bureau of Census, wild hay omitted.

³ Long-time average adjusted yield by counties from state offices, Agricultural Adjustment Administration.

⁴ Percentage of the average yield required for crop insurance premiums.

⁵ Specialized wheat areas (see Table II).



used for all crops has been increased since 1939, the amount of unused cropland in 1942 and 1943 must be substantially less than the million acres which were available in 1939. Farmers in some instances probably will welcome the opportunities to substitute wheat for other grain crops which were planted when the wheat acreage was restricted. Thus, a portion of the increase in wheat acreage in the high yielding areas is likely to result in a decrease in other grain crops.

The medium yielding portions of Areas I, II and III had more acreage and produced more wheat than did either the high- or low-yielding portions during the past decade. There was also less fluctuation in wheat acreage and less substituting of other crops as the wheat acreage was reduced. In contrast to the high-yielding areas, the reduction

of 6.5 million acres of all crops was greater than the reduction of wheat acreage which was 4.7 million acres. Wheat acreage might be increased to approach its former high point in the medium-yielding areas with a minimum displacement of other crops or the use of cropland which has been regrassed.

Although the yield is less in the medium-yielding areas and the risk is 20 per cent as compared with 9 per cent for high-yielding areas, a much larger acreage of idle cropland is available. Compared with averages for the region, both the yield and risk are medium. If special inducements are needed to get the desired wheat acreage, they should be applied vigorously in these medium-yielding portions of the wheat areas. Encouragement for a maximum increase in the medium-yielding areas might help to avoid the substitution of

crops and where a substantial acreage of idle cropland is available, the increase must come primarily from these three areas.

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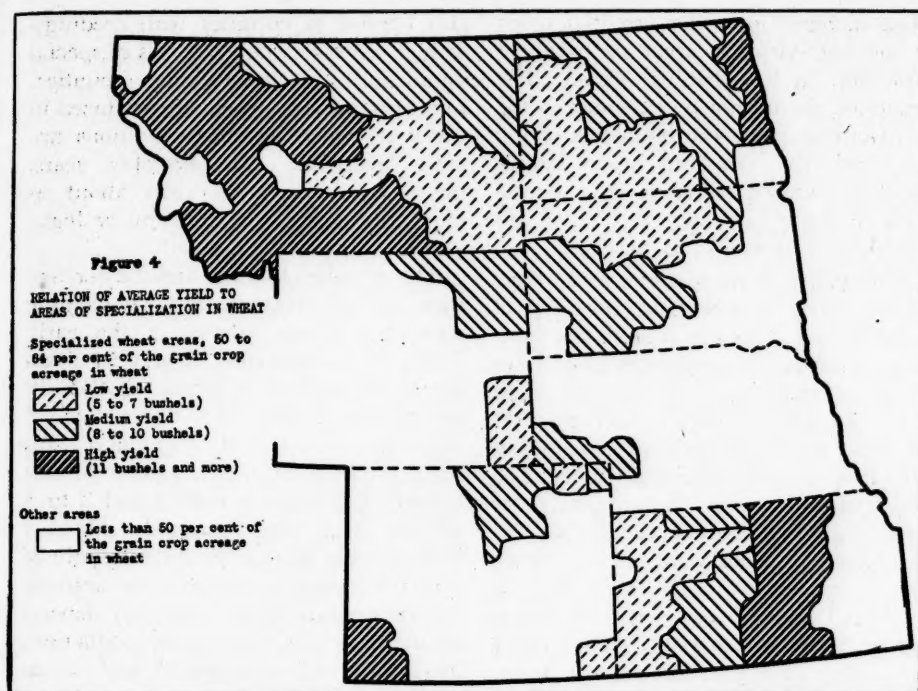
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Although the yield is less in the medium-yielding areas and the risk is 20 per cent as compared with 9 per cent for high-yielding areas, a much larger acreage of idle cropland is available. Compared with averages for the region, both the yield and risk are medium. If special inducements are needed to get the desired wheat acreage, they should be applied vigorously in these medium-yielding portions of the wheat areas. Encouragement for a maximum increase in the medium-yielding areas might help to avoid the substitution of

wheat acreage for other essential crops in the high-yielding areas or excessive expansion in low-yielding areas. The expansion should not be extended to the point of disrupting the regrassing of the less productive cropland or to induce excessive plowing of native sod, at least until necessity dictates a greater increase than now appears necessary.

Low-yielding Parts of Specialized Wheat Areas. The low-yielding portions of Areas II and III^{*} have possibilities for a large expansion in acreage but also have severe limitations. The average yield is low and risk is high. Average yield for these areas from 1931 to 1941 fluctuated from 2 to 13 bushels per acre. The effect of fluctuations is aggravated by what might be called a cyclical tendency. For example, yields were below average for 5 consecutive years from 1933 to 1937 and above average for the 5-year period from 1938 to 1942. When yields are above average for several years, wheat production is an attractive enterprise and acreage is likely to be increased, particularly when high prices coincide with the high yields. This situation may be followed by one in which yields are below average for several years.

In spite of their limitations, the low-yielding areas are important producers of wheat. Although the long-time county average yield is low, some localities are better than average and there is wide variability from year to year in all localities. A distinction should be made between county-average, community-average, and farm-average yields. A county with low-average yield may contain a community with medium yield and individual farms with medium- or even high-average yield. This situation

also applies to counties with medium- or high-average yield, but it is of special significance in low-yielding counties. Large quantities of wheat are produced in the years when weather conditions are most favorable. In favorable years, the low-yielding areas yield about as much per acre as the medium or high-yielding areas.

The acreage of wheat and the acreage used for all crops in the low-yielding areas was much greater in the early 1930's than at present. About 6.5 million acres were planted to wheat in 1943, 38 per cent less than in 1933. The acreage of all crops was reduced 5.3 million acres from 1929 to 1939. A portion of this former cropland was retired and 2 to 3 million acres were regrassed. Since a large acreage of land near the margin of crop production is available, the amount of expansion in these areas will depend on the price of wheat, cost of production, availability of equipment and manpower and public programs for or against such expansion.

The consensus among both farmers and technicians is that the wheat acreage was over-expanded in the low-yielding areas in the 1930's. A substantial increase in acreage now in any except the best localities of these low-yielding areas is likely to require a downward adjustment in the acreage when the demand for wheat is less than during the war period. Unless the need for wheat becomes very great and an ample supply of machinery and labor are available, the increase in acreage in the low-yielding area should be confined to the best localities.

The extensive margin of land use varies greatly with changes in price of wheat and cost of production. When the price of wheat is high in relation to cost of production, the wheat acreage may be expanded in localities of low yield. When price is low in relation to cost, a

^{*}No low-yielding counties are found in Area I. Practically all of the counties in the region with low average yield are in Areas II and III.

large acreage becomes idle. The 5, 6 and 7 bushel portions of the specialized wheat areas have shown this tendency to a much greater degree than the 8, 9 and 10 bushel portions.

An "all-out" program to increase wheat production would exhaust all methods of obtaining greater production of wheat on the intensive and extensive margins. The extensive margin probably should be the last to be fully exploited because of the seriousness of the maladjustments which are inherent in the use of marginal and submarginal cropland. If such an all-out program should become necessary, however, great interest attaches to the possibilities of securing wheat from the low-yielding areas for an emergency period. These areas produced 103 million bushels of high-quality bread wheat in 1941, enough to supply 20 per cent of the annual consumption as food in the United States. From 1931 to 1941, the smallest amount produced was 13 million bushels in 1934; the average 51 million; and the total for 11 years, 566 million. The amount of wheat which would be obtained in the next few years if the acreage were increased to the former high point is a matter of chance. Although the long-time average risk and yield are known, the probabilities of wheat yield for a year, or several years ahead, cover a wide range. The production possibilities if the acreage were increased to the former high of 10.5 million acres based on various yields are as follows: 95 million bushels from a yield equal to the 1938-41 average, 68 million from long-time average yield, 136 million from a yield equal to the highest from 1931 to 1941,¹⁰ and 18 million from the lowest yield for the period.

A program designed to make the maximum use of the land resources in the low-yielding areas for wheat production

should not be instituted except as a war measure which is based on necessity. Provision would need to be made for the orderly expansion of wheat acreage when the need was great and for returning cropland to a grazing use after the emergency had passed. The provisions should include assurance that the best-known practices to gain production and conserve resources were used. Some means of relieving the wheat grower of a portion of the high risk and probably of the cost of production would be needed on the lowest-yielding land. Such a program might make provision for increasing acreage by the use of more labor-saving machinery in the hands of present operators and thus avoid the problem of more families moving into these areas. In return for an increased acreage during the war, the operator could be given assurance of adequate assistance in converting his farm back to a more conservative, peace-time basis.

Summary

Experience in the utilization of land resources for the production of wheat in the Plains reflects the economic and physical conditions under which wheat is grown. An analysis of this experience, together with indicators of productivity, natural hazards, and competition from other crops in various areas, provides a background of information for making decisions regarding acreage adjustments for the war and post-war periods.

Several fundamental facts appear to be established: (1) The acreage of wheat and the total of all crops in the Plains were reduced greatly from 1932 to 1942. (2) Of the 16 million acre reduction in land used for crops, about 8 million acres were idle in 1942 and the other 8 million had been retired, re-

¹⁰ Production for the Plains in 1942 was the highest on record but has not been calculated for the areas which are discussed here.

grassed or added to the summerfallow acreage. (3) Three-fourths of the idle land was in the specialized wheat areas and most of it on land that produces medium to low yields. (4) Acreage adjustments from 1931 to 1941 show that wheat and other grain crops are interchangeable in diversified, high-yielding portions of the Plains while the alternatives in the specialized-wheat, low-yielding portions of the Plains are wheat, idle cropland or grass. (5) A major adjustment in land use, the "permanent" retirement and regrassing of several million acres of low-yielding cropland, has occurred in the past decade. (6) The economic and physical conditions are such that wheat-acreage can be increased during the war with much less risk in some areas than in others and with fewer soil conservation and financial problems when the war is over.

If the acreage is expanded in areas where experience indicates wheat has a comparative economic advantage over other crops, where a substantial amount of idle cropland is available, and where a minimum displacement of other essential crops will occur, the principal expansion must be made in the more specialized wheat areas. Within these

areas, the amount of high-yielding land is limited and the production from the lowest-yielding land is erratic. In the medium-yielding parts of the wheat areas, production is less erratic than in the low-yielding parts, and more idle land is available than in the high-yielding parts. Although the wheat acreage is likely to be increased to some extent in all areas, the greatest increase should be encouraged in the medium-yielding portion of the specialized wheat areas.

Although large quantities of wheat have been produced in favorable years in the low-yielding areas, the risk is high and undue expansion of acreage is likely to bring severe postwar problems. Some localities in the low-yielding area have long-time yields that are higher than the average for the whole area. A moderate increase in these localities might well be made. In the lowest-yielding localities, however, no encouragement should be given for increasing wheat acreage until the need for wheat is very great and ample machinery and labor are available. Even then, provision should be made to regrass the land when conditions are such that this land will need to be retired from crop production.

Reports and Comments

The Creed of a Great Public Servant

IN THE death of Joseph B. Eastman on March 15, 1944 the nation lost a great public servant and the profession of public administration lost one of its most eminent and statesmanlike practitioners. When he died he held the office of Director of the Office of Defense Transportation and was also a member of the Interstate Commerce Commission of which he had formerly been Chairman. Shortly before he died, a testimonial dinner was held to honor him and celebrate his 25 years' service as a member of the Interstate Commerce Commission. In responding, Mr. Eastman made twelve observations which distilled the gist of his experience upon an administrative commission.

These twelve observations sum up the ripened philosophy of a distinguished administrator who made a career of public service. Although this creed has already been printed elsewhere, it seems to me appropriate to reprint it for the convenience of readers of the *Journal* who may have missed seeing it.

There is little question that our administrative agencies are going to play an ever more important role in the future. Unless these agencies do a good job, commanding public confidence and support, the institutions of democratic government in an increasingly complex economy will languish and in the long run the individual citizen will suffer. The sane and balanced viewpoint of Mr. Eastman, as expressed in this statement, deserves consideration as a yardstick for gauging the merit of the performance of administrators, past and future. Here is the creed:

"(1) With the country as big and complex as it is, administrative tribunals like the Interstate Commerce Commission are necessities. Probably we shall have more rather than less. To be successful, they must be masters of their own souls, and known to be such. It is the duty of the President to determine their personnel through the power of appointment, and it is the duty of Congress to determine by statute the policies which

they are to administer; but in the administration of those policies these tribunals must not be under the domination or influence of either the President or Congress or of anything else than their own independent judgment of the facts and the law. They must be in position and ready to give free and untrammelled advice to both the President and Congress at any time upon request. Political domination will ruin such a tribunal. I have seen this happen many times, particularly in the states.

"(2) The courts were at one time much too prone to substitute their own judgment on the facts for the judgment of administrative tribunals. They are now in danger of going too far in the other direction. The principle that it is an error of law to render a decision not supported by substantial evidence is a salutary principle. The courts should enforce it.

"(3) An administrative tribunal has a broader responsibility than a court. It is more than a tribunal for the settlement of controversies. The word 'administrative' means something. The policies of the law must be carried out. If in any proceeding the pertinent facts are not fully presented by the parties, it is the duty of the tribunal to see to it, as best it can, that they are developed of record. A complainant without resources to command adequate professional help should be given such protection. The tribunal should also be ready to institute proceedings on its own motion, whenever constructive enforcement of the law so requires.

"(4) There is no safe substitute in the procedure of the tribunal for full hearing and argument of the issues, when they are in controversy, although the hearing need not always be oral. This takes time, but it is time well spent.

"(5) The decisions of the tribunal should present succinctly the pertinent facts, as they are found to be, and the conclusions reached, but also state clearly the reasons for the conclusions.

"(6) The statutes which the tribunal administers should be well, simply and carefully framed, but the personnel which does the administering is more important than the wording of the statute. *Good men can produce better results with a poor law than poor men can produce with a good law.*

"(7) It is not necessary for the members of the tribunal to be technical experts on the subject matter of their administration. As a matter of fact, you could not find a man who is a technical expert on any large part of the matters upon which the Interstate Commerce Commission finds it necessary to pass. The important qualifications are ability to grasp and comprehend facts quickly and to consider them in their relation to the law logically and with an open mind. *Zealots, evangelists and the crusaders have their value before an administrative tribunal, but not on it.* Other important qualifications are patience, courtesy and a desire to be helpful to the extent that the law permits.

"(8) Moral courage is, of course, a prime qualification, but there are often misapprehensions as to when it is shown. The thing that takes courage is to make a decision or take a position which may react seriously in some way upon the one who makes or takes it. It requires no courage to incur disapproval, unless those who disapprove have the desire and power to cause such a result. Power is not a permanent but a shifting thing. I can well remember the time when it was a dangerous thing to incur the displeasure of bankers, but there has been no danger in this since 1932. It became a greater danger to incur the displeasure of farm or labor organizations. There is nothing more important than to curb abuse of power, wherever it may reside, and power is always subject to abuse.

"(9) Selection of the members of an administrative tribunal from different parts of the country has its advantages, but they turn to disadvantages if the members regard themselves as special pleaders for their respective sections.

"(10) Sitting in dignity and looking down on the supplicants from the elevation of a judicial bench has its dangers. A reversal of the position now and then is good for the soul. It has for many years been my good fortune to appear rather frequently before legislative or Congressional committees. They are a better safeguard against inflation than the O.P.A.

"(11) In any large administrative tribunal, like the Interstate Commerce Commission, a vast amount of the real work must necessarily be done by the staff. It is a difficult problem to give the individual members of the staff proper recognition for work well done—recognition on the outside as well as the inside. It is very important that this problem be solved, but I am frank to say that its full solution has not yet been reached.

"(12) One of the great dangers in public regulation by administrative tribunals of business concerns is the resulting division of responsibility, as between the managements and the regulators, for the successful functioning of these concerns. For example, there was a tendency at one time, and it may still exist, on the part of those financially interested in the railroads to think of the financial success of those properties solely in terms of rates and wages and the treatment of rates and wages by public authorities. Sight was lost of the essentiality of constant, unremitting enterprise and initiative in management. *The importance of sound public regulation cannot be minimized, but it must not be magnified to the exclusion of those factors in financial success upon which ordinary private business must rely.*" (Italics supplied).

Although these observations really speak for themselves, I feel impelled to add a few comments highlighting some trends which seem to me especially important at this time. For nearly 12 years administrative agencies have multiplied at the federal level. Moreover these agencies have been very active in promulgating rules and regulations and in devising administrative procedures affecting individual and corporate behavior. For the past three war years this expansion of administrative activity has been accelerated.

This expansion puts a premium upon the competence of the administrator and his attitude of mind. Does he have a professional regard for his duties or does he look upon his office as a political sinecure? What are his views of the proper scope of administrative discretion in relation to legislatures and courts? Unless administrative officials measure up to high standards in such respects as these, some contend that growth of administrative controls leads to totalitarianism¹ rather than to a wise and acceptable adjustment of individual freedom to social welfare.

In these respects it is interesting to contrast briefly the views of Mr. Eastman and Dean Landis² and Mr. Justice Douglas.³ The latter two represent more recent, up-to-the-minute thinking upon the role of a progressive administrator. Mr. Eastman's Interstate Commerce Commission experience was with the "grandfather" of federal

¹James M. Landis, *The Administrative Process* (Yale University Press, 1938).

²William O. Douglas, *Democracy and Finance* (Yale University Press, 1940).

³F. A. Hayek, *The Road to Serfdom* (University of Chicago Press, 1944).

commissions, the oldest of its kind in continuous existence. The others' experience was with the Securities and Exchange Commission, one of the youngest administrative bodies pioneering in a new field. All three men represent a professional point of view toward public administration and all three showed a high level of competence in administrative work.

The similarities in the views of these three men respecting public administration are striking. All three assert the necessity of administrative agencies to meet the technical complexities of modern economic and political life. All three stress the importance of the independence of the administrative agency, favor full investigations and recitals of facts in support of administrative decisions and conclusions, and view the work of such agencies as a "profession." Similarly, they are united in urging administrators to adopt a forward-looking, progressive attitude toward new problems as they arise.

Yet there are some differences that, although apparently small in degree, are very significant when considering the trends in the administrative process. I have not attempted any exhaustive comparison. But the few contrasts here mentioned seem to me to afford a basis for some useful reflections.

(1) *Relationship to legislature.* Mr. Eastman seems definitely of the opinion that the policy of the law is made by the legislators and, accordingly, statutes should be "well, simply and carefully framed" and scrupulously observed by the administrative agency. Crusaders should be off, not on, commissions. Conclusions and orders of administrative bodies should be fully supported by "substantial evidence." Even when Mr. Eastman voiced his preference for public ownership of railroads, he was careful to point out that his views were personal and "outside" the policy embodied in statutes.

If I read Dean Landis correctly, he would favor, in certain fields at least, a very broad delegation of power to the administrative agency giving it considerable latitude in applying this power. Where two constructions of a statute are possible and plausible, Dean Landis would elect the one giving the administrative agency the greater power and the broadest reach in the interest of

flexibility in the accomplishment of statutory objectives or to meet new problems as they arose. In some instances, this leads to administrative legislation, a counterpart of judicial legislation. Mr. Justice Douglas, judging from the tenor of his opinion in the *Hope Natural Gas* case,⁴ would be similarly disposed.

Much as one may deplore the cumbersome of the legislative process in a representative democracy when the legislature acts through committees with out-of-date procedures, most people would prefer to suffer from these defects than to risk too much administrative discretion which shades imperceptibly into administrative license. One of the finest points in the art of administration, and one of the earmarks of a great administrator, is to know just how far to stretch the powers of the administrative agency before going to the courts for review or going back to the legislature for clarification or a grant of new power. Mr. Eastman certainly showed this characteristic in high degree.

(2) *Relationship to courts.* All three men are united in condemning judicial usurpation of the judgment of facts. Dean Landis, however, would apparently go further in having the courts presume administrative expertness in judging facts and framing policies based thereon within a broad delegation of power and thus in confining the courts to review of the law only. Mr. Justice Douglas voiced similar views in the *Hope Natural Gas* case. Although Mr. Eastman did not cite cases, his warning that the courts were in danger of going too far toward administrative supremacy and that they should enforce the "salutary principle that it is an error of law to render a decision not supported by substantial evidence" leads one to suspect that he would not wholly agree with either Mr. Justice Douglas or Dean Landis. Perhaps, though, the disagreement would turn primarily on what constituted "substantial evidence."

(3) *Politics.* Mr. Eastman condemned political influence in no uncertain terms. He asserted the independence of the administrative agency from both Congress and the President. "Political domination will ruin such a tribunal."

Dean Landis, though clearly in favor of keeping administrative agencies independent of political domination, makes this observation, apparently based on his experience.

⁴ *Federal Power Commission v. Hope Natural Gas Co.*, 320 U. S. 591 (1944).

"This dependence of the administrative upon the other departments of government, it may be observed at this point, inevitably develops several qualities which, today, do in fact characterize administration. Of these, the practice of patronage is outstanding. Inasmuch as good will is essential in order to assure uninterrupted means for the effective pursuit of policies, personal antagonisms arising out of a disregard of patronage problems cannot be ignored. On occasion it may even be necessary to cement alliances by a wise use of the power of appointment."⁵

This seems directly at variance with Mr. Eastman's first observation.

That Mr. Justice Douglas would generally agree with Mr. Eastman's position can be inferred from the following statements while he was still a member of the Securities and Exchange Commission:

"But it is only fitting, perhaps, that in discussing the business of government I take a moment to define those standards of trusteeship which must prevail in public office. The trusteeship of the public official is something beyond the simple honesty of spurning such subsidiary emoluments as may go with the office or of avoiding exploitation of the circumstances that may attend the performance of official duties. In the administrative agency, particularly, the standard of trusteeship goes beyond these elementary concepts. It demands a strict devotion to the law both in letter and spirit. It demands a fearless respect for facts, regardless of pressures or consequences. It requires a mastery of technicalities. It demands complete independence of—yet intelligent, official sympathy for—the group being regulated. It demands dispensation or reasonableness and fairness to all alike. It entails a high order of law administration so that the stature being administered becomes a constructive force for progress."⁶

That politics will "ruin" an administrative tribunal cannot be over-emphasized. Too often, not only in the federal service but in the states as well, appointments to administrative agencies have been the reward of political services rather than an accolade for independent capacity.

An incident in Mr. Eastman's career is a graphic illustration of the subordination of politics. One of Mr. Eastman's terms as Interstate Commerce Commissioner expired during President Hoover's administration.

There were rumors that Mr. Eastman would not be re-appointed. Thereupon many of the leading railroad executives joined in urging his reappointment even though he was outspokenly opposed to their contentions on many important issues. It is to the credit of these executives and the politicians that Mr. Eastman was re-appointed. This was one of the greatest tributes to Mr. Eastman's integrity, capacity and independence.

(4) *Competent Personnel.* To me, the most significant comment in Mr. Eastman's statement is the supreme importance of good men in effective administration. Competent men, not only on the administrative board itself, but also and especially on its technical staff, are indispensable to good administration. Too often we are lulled by that old adage, "we live under a government of laws," into forgetting that men make the laws. This is especially important when we recall how government has pervaded economic life and how "pressure groups," the American equivalent of the political blocs of Continental Europe, play an increasingly large role in shaping governmental policies. In view of these developments, it is not too much to say that our political democracy will be successful in proportion as we develop a profession of administration.

Public administration is an exacting profession. It requires not only the qualities of patience, courtesy, integrity and the others mentioned by Mr. Eastman but also at least three not mentioned by him—namely, a sense of humor, a "thick skin," and ability to think oneself into another's place. During the past 15 years, I have had an opportunity to observe some examples of both governmental and corporate administration⁷ and have become convinced that good administration is a great art, rarely practiced with a high degree of competence or imagination. But I have also become convinced that for our increasingly complex economy to function satisfactorily and progressively, both in government and in business, we must develop more men with the art of good administration. We may well pause, therefore, to mourn the passing and honor the memory of such a great administrator as Joseph B. Eastman.

⁷ Landis, *op. cit.*, at pp. 10-11, points out the similarities between corporate direction and management, and the work of an administrative, regulatory agency.

New York City.

E. W. MOREHOUSE.

⁵ Landis, *op. cit.*, p. 62.

⁶ Douglas, *op. cit.*, pp. 257-258.

Mapping Chicago's Industrial and Commercial Land Use

Purpose

THE analysis of a city's industrial and commercial land use pattern is an indispensable prerequisite to the formulation of plans—both long-range and for the immediate postwar period—for the guidance of the city's future industrial and commercial development, and for the provision of a sound basis for zoning, and for planning of housing, highways, transit, public utilities and all other phases of a comprehensive over-all master plan. Such an analysis is now being carried on by the research staff of the Chicago Plan Commission.

As a fundamental part of the study, a series of maps and tabulations are in course of preparation showing the detailed geographic distribution of industrial and commercial land use and employment throughout the city. Techniques that have been developed are believed to be unique in several ways, and it is possible that other cities may find in them much of value in the development of similar studies.

The study of land use classifies, by type of business operation and by kinds of products, each industrial and commercial establishment in the city. It shows the specific industrial and commercial land use on every parcel so used, and also shows on a smaller scale the general pattern of such uses throughout the city as a whole. The geographic pattern of employment in the city is being mapped simultaneously.

The techniques described in this article are used within the corporate limits of Chicago only; however, the study will ultimately embrace certain portions of the metropolitan area outside the city in somewhat lesser detail.

Sources of Data. The primary source of data was the records of the Chicago Land Use Survey, supplemented by various official maps, by Sanborn fire insurance maps, by aerial photographs, and by field investigations of changes in land use that occurred subsequent to the completion of the survey.

The Chicago Land Use Survey, sponsored by the Chicago Plan Commission, prepared an inventory of all types of land use within the

city showing the use and other characteristics of each of the 640,000 parcels of land as of 1941. As an integral part of the survey, an enumeration was made of each industrial and commercial establishment which obtained, among other facts, information regarding: (a) the general type of business operation such as manufacturing, wholesale with stock, storage, commercial, etc.; (b) the kind of product or service; and (c) the number of persons working at each location. The information was recorded on field schedules and arranged by city blocks, of which there are approximately 12,000 with industrial or commercial uses. Filed with the schedules for each block is a map identifying the location of each land use.

Base Maps. Two base maps, previously prepared by the Land Use Survey, were employed for mapping the industrial and commercial land use information: one map was on a scale of 250 feet per inch; the other 1,000 feet per inch.

The larger scale map was printed in 238 sheets, each 24 inches square and covering a square mile or a portion thereof where the full square mile was interrupted by the city boundary. The sections were carefully prepared at a uniform scale to permit the joining of any two or more contiguous sections to provide a continuous map of any desired portion of the city. This base map, a very small section of which is displayed here as Figure I, shows streets and alleys, railroads, street car lines, elevated railways, waterways, parks, schools, cemeteries, and the boundaries of each parcel of land. The scale of 250 feet per inch was found to be the smallest practicable one for showing land use on parcels less than 25 or 30 feet wide.

The smaller scale (1,000 feet per inch) map is similar to the larger one except for the omission of parcel lines. This map has been made by photographically reducing and joining the 238 square-mile sheets of the larger map. The 1,000-feet-per-inch map was divided into 26 sections, each measuring 24 by 18 inches and covering 12 square miles. The 26 sections, like the 238 sheets of the larger map, are also scaled to permit joining of adjacent sections.

The regular rectangular gridiron street pattern of Chicago, and particularly the regularity of section-line streets forming square-mile boundaries, is very useful in mapping. It provides readily available equal-area units, bounded by major streets that are well known.

Classification of Establishments. The type of land use to be mapped was determined by the nature of the activities carried on in the establishments at each location. The industrial and commercial land uses are shown in five major classifications: (1) manu-

facturing, (2) wholesale, (3) storage, (4) heavy service, and (5) commercial. "Wholesale" includes only land uses on which stocks of merchandise were carried. Wholesale establishments without such stock are classified as commercial. "Commercial" includes retail stores, small personal service establishments, office buildings, theaters, hotels other than apartment hotels, rooming houses, small hand-laundries, repair and other hand-craft shops, filling stations, and used-car and parking lots.

The manufacturing, wholesale, and storage

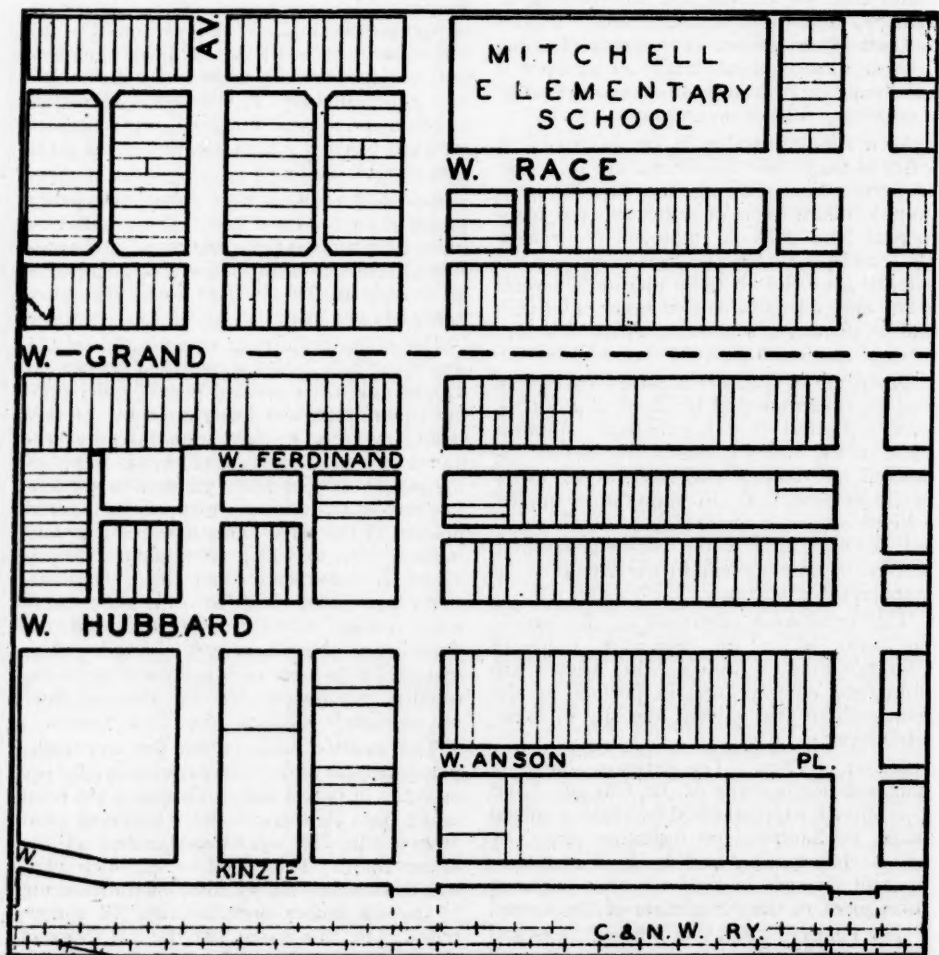


Figure I. Small section of a base map, showing boundaries of land use parcels.

establishments were further classified into 20 categories, in accordance with the nature or type of goods produced, processed, or handled. It makes possible the eventual preparation of separate maps showing the land used for specific kinds of business such as, for example, manufacturing of food products. The classifications are similar to those used by the U. S. Bureau of the Census in its *1939 Census of Manufactures*. The "Standard Industrial Classification" of the Central Statistical Board (Washington, 1939)

proved invaluable in assigning many establishments to their proper classification.

The "heavy service" establishments were classified into six categories: (1) utilities such as power stations, telephone exchanges, and sewage disposal plants, both publicly- and privately-owned; (2) storage garages, not including small private garages; (3) railway, highway and waterway freight terminals; (4) repair shops of all kinds except small hand-craft shops; (5) laundries, cleaning and dyeing establishments except small

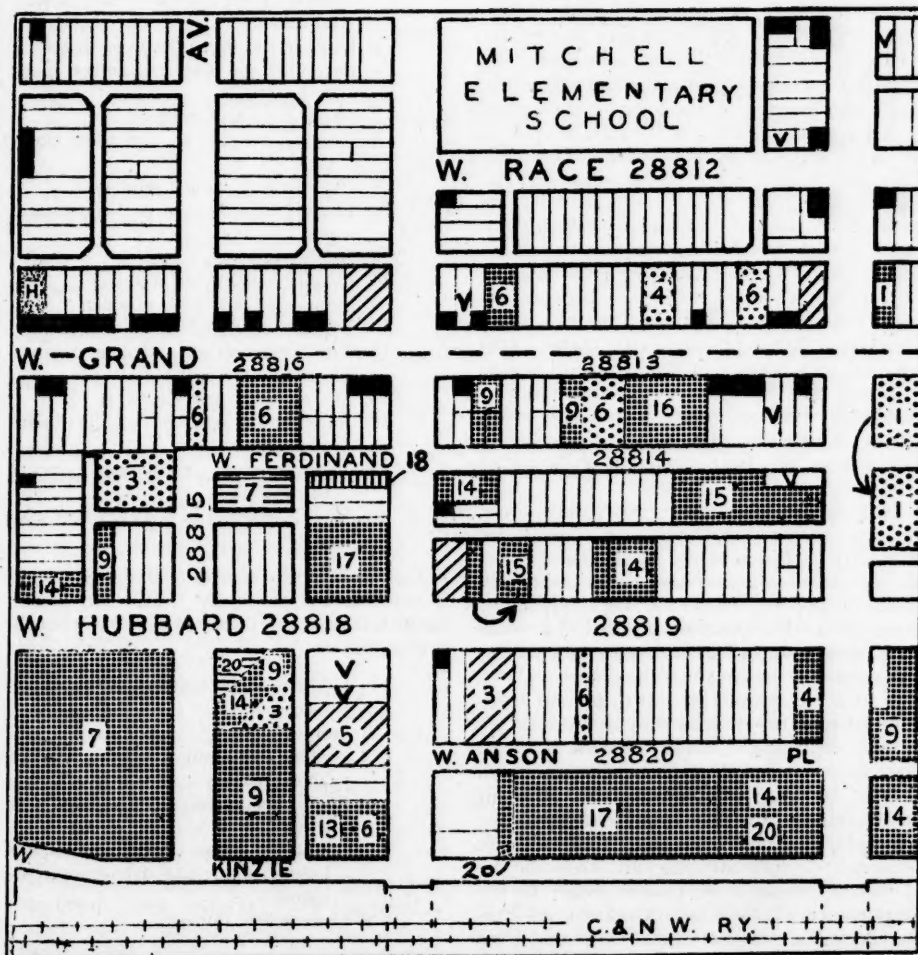


Figure II. Small sections of a land use map, showing symbols and numbers which indicate type and classification of industrial and commercial land use.

hand-laundries; and (6) contractors' establishments where equipment is stored.

Commercial establishments were not sub-classified by kind of business, except in the case of hotels and rooming houses, which were separately differentiated because of their residential character.

Large-Scale Map. The large-scale land use map (Figure II) shows the detailed classification of industrial and commercial land uses in each parcel. Block identification numbers were placed on the map as a preliminary step in plotting the land use information. These numbers correspond to the block numbers used by the Land Use Survey by which the field schedules had been filed.

Bright contrasting colors differentiate the five major categories: red for manufacturing, blue for wholesale, green for storage, yellow for heavy service, and purple for commercial. Uses are indicated by color covering the entire parcel, except in the case of commercial. Commercial uses are shown by a broad purple band along the street frontage of the parcel. The parcel, in such cases, is not entirely covered with color because (a) most commercial activity is primarily along the street frontage, and (b) many commercial uses occupy only portions of buildings and parcels occupied by other kinds of uses also. In cases where only a very small part of a structure or parcel was devoted to commercial use, only a portion of the street frontage is colored in purple.

Non-structural land uses—uses that do not include major structures—are shown by diagonal hachures of the appropriate color. In the case of uses that cover large areas only a small portion of which includes major structures, the portion covered by such structures is shown in solid color and the remaining area by means of hachures.

Vacant structures of industrial and commercial type are indicated by the letter "V" in the appropriate color. Vacant space in partially occupied structures is not indicated.

Two or more establishments of different major classes in the same structures (for example, manufacturing and wholesale) are shown by colors covering an area of the parcel approximately proportionate to the importance of each establishment as indicated by floor area occupied (obtained from the original field schedules) and the number of workers employed.

The sub-classifications of manufacturing,

wholesale, storage, and heavy service uses, indicating the products or nature of the service, are shown by numbers superimposed on the colored parcels. Thus the major classification is shown by color and the subclass by number. Sub-classes of manufacturing, wholesale, and storage uses are as follows:

1. Food and kindred products
2. Tobacco
3. Textile mill products
4. Apparel and other finished products made from fabrics and similar materials
5. Lumber and timber basic products
6. Furniture and finished lumber products
7. Paper and allied products
8. Printing, publishing, and allied products
9. Chemicals and allied products
10. Products of petroleum, coal and natural gas
11. Rubber products
12. Leather and leather products
13. Stone, clay, and glass products
14. Iron and steel and their products
15. Non-ferrous metals and their products
16. Electrical machinery
17. Machinery, except electrical
18. Automobiles and automobile equipment
19. Transportation equipment, except automobiles
20. Miscellaneous, and not elsewhere classified

The six-fold division of "Heavy Services" is peculiar to this study. The sub-classes, indicated by numbers within the parcels, are as follows:

1. Utilities, both publicly- and privately-owned
2. Storage garages
3. Freight terminals: highway, railway, and waterway
4. Repair shops, except small hand-craft shops
5. Laundries, except hand laundries, and large cleaning and dyeing establishments
6. Contractors' storage

Hotels and rooming houses are differentiated from other commercial uses by a light purple color over the entire parcel.

The letter "H" or "R," as the case may be, is also entered in the parcel.

Two types of railroad carrier land use are specifically shown: (1) freight terminals, and (2) repair shops, including roundhouses. Such uses are indicated in yellow with the appropriate code number. Structures devoted to such uses were located with the aid of Sanborn fire insurance maps and aerial photographs. The hachured symbol for non-structural areas is used. Yards and other trackage details are shown on the base map.

Small Scale Map. In order to visualize the industrial and commercial pattern of large sections of the city, and to provide suitable copy for publication, a map was prepared on the smaller scale of 1,000 feet per inch. Because of the smaller scale, it was necessary to generalize the land uses somewhat. Uses having very small area were somewhat exaggerated in order to improve legibility. The major classes of land use shown on the smaller scale map are similar to those shown on the large scale map, except that wholesale and storage are combined. This combination was decided upon because of the general similarity of the two types of uses. The color scheme on the small scale map, however, is different from that shown on the more detailed map because of the combination of wholesale and storage uses. Manufacturing is shown in red, wholesale and storage in blue, heavy service uses in green, and commercial in purple. The twenty sub-classes of manufacturing, wholesale, and storage, and the six sub-classes of heavy service uses are not shown because of the small scale of the map. Commercial land uses are indicated by purple color covering the entire area of the parcel, rather than the street frontage as on the larger-scale map. This is necessary in order to make commercial uses more clearly visible on the smaller scale and to insure legible reproduction. Non-structural land uses are not differentiated from structural uses of the same type because of the difficulty of showing a legible symbol at the small scale.

Wall Map. After all tracings have been completed and checked, the twenty-six sections of the original colored map will be matched and mounted on cloth as a wall map suitable for use at large public meetings. This map will show at a glance the city-wide industrial and commercial pattern.

Preparation of Copy for Printing. The twenty-six-page colored industrial and commercial land use map is to be printed as a part of a comprehensive planning study and report to be issued later. In order to permit reproduction on a page, twelve by nine inches, it will be necessary to reduce the map to a scale of two thousand feet per inch, half the scale of the original copy. This is to be done photographically.

In the preparation of copy for reproduction, a separate sheet of tracing cloth for each of the four colors is placed over each of the twenty-six sections of the map. On one set of tracings, for example, all land used for manufacturing, which is to be printed in red, is carefully traced in black. A separate set of tracings is prepared for each color. The base map without colored entries and the corresponding tracings for each color are all photographed by the printer in the same focus of the camera to insure uniform scale and good register of color.

Separate Maps of Major Types of Land Use. A city-wide map is to be made for each of the four major types of industrial and commercial land use. For example, one of the products of the mapping program will be a city-wide map showing the location of all manufacturing land uses. Such a map will be prepared by the use of the base map together with one of the four black-and-white tracings, representing but one color, red, of the four color map.

Applications

The entire mapping program of industrial and commercial land use was planned so that a series of products will evolve from the various stages of a single, integrated, creative effort.

For detailed study of separate parts of the city, the square-mile set of maps on the 250 feet-per-inch scale will be used primarily. The smaller scale maps are of particular utility for visualizing larger areas. The latter are intended for publication and general distribution.

Because the basis of Chicago's economy and the city's *raison d'être* is its industry and commerce, a knowledge of the locations and patterns of the city's industrial and commercial land uses, such as these maps show, is an important element essential to practical planning. The residential pattern of the city has been the subject of detailed study, and a

Residential Master Plan, recently published,¹ will provide guidance toward a more rational, efficient and economical pattern of future development and redevelopment of the residential areas. The maps of industrial and commercial land use will furnish much of the basic information to be used in working out similarly comprehensive plans for the city's future industrial and commercial development.

Re-zoning is expected to be an important result of the industrial and commercial study. Comparison of the maps showing present industrial and commercial land uses with the use-district maps of the Chicago Zoning Ordinance suggests immediately the need for re-zoning. The maps of existing land use reveal at a glance the scattering of small commercial uses throughout residential neighborhoods and demonstrate the need for a vigorous effort to bring about the gradual amortization of non-conforming uses as well as those that have resulted from random spot-zoning. Such invasion of otherwise good residential neighborhoods is clearly shown by the maps. By contrast, the major streets, particularly those on the section-lines that bound the square miles, are seen to be lined with long, attenuated ribbons of commercial development, solid in densely built-up areas, and somewhat dispersed in the less densely developed parts of the city. It is evident that zoning has in the past permitted and encouraged such ribbon development. The maps of existing industrial and commercial land use, together with additional and more detailed studies to be undertaken as a preliminary to the *Industrial and Commercial Master Plan of Chicago*, will indicate the extent and location of excessive over-zoning for commerce and industry. Re-zoning may result in a more orderly commercial pattern, attuned more nearly to the economic requirements of the city's population.² The elimination of much over-zoning for commercial use will tend to discourage the small submarginal, uneconomic store which has been an important cause of neigh-

borhood deterioration as well as a financial burden. And finally, integration of the industrial and commercial with the residential land uses, encouraged by a rational zoning ordinance designed to assist in the effectuation of the Master Plan, will do much to encourage more orderly balance between commercial centers and the residential areas they serve.

The maps will be invaluable, furthermore, to all who are interested in industrial development, for they reveal the patterns and locations of the city's industrial concentrations, indicate the general nature of the industries in each area, and suggest sites that may be investigated with regard to their suitability for development in the future industrial expansion of Chicago.

The relationships between the locations of the city's centers of employment and the homes of the city's workers are being studied with the aid of these maps together with those prepared in connection with the residential study. The recommendations now being developed by the Chicago Plan Commission should encourage the location of employment opportunities near the homes of the workers and *vice versa*, thereby reducing the wasteful and non-productive time spent by the average Chicagoan in commuting between home and work. Local mass transportation routes, as well as vehicular thoroughfares, can be planned more easily and more logically with a knowledge of the basic land use pattern such as may be gained from these maps and supplementary detailed studies.

In the industrial and commercial land use map, the Chicago Plan Commission has made available an important tool of great value to those interested in the present city and in the greater Chicago of the future.

"Some Patterns and Recent Trends in Chicago's Outlying Business Centers," *Journal of Land & Public Utility Economics*, February 1942, pp. 4-16.

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¹ *Master Plan of Residential Land Use of Chicago*, Chicago Plan Commission, 1943.

² For a somewhat more detailed analysis of zoning in relation to the commercial pattern see: Harold M. Mayer,

Farms and Homes for Veterans

IF THE soldier from the invasion army in France had the time to blueprint his postwar world, what would he include? Would he make plans and specifications for a home or a farm? Would he envisage a program for finishing an interrupted education? Would he want to change his job and look to the government for aid in finding a new one? Would he plan to use a possible federal bonus to satisfy some unfulfilled desire? On the assumption that today's soldier would welcome any or all of these in his blueprint, the leaders of the United Nations have evolved master plans and in some cases have begun construction.

One major part of these master plans, "Farms and Homes for Veterans," has found active recognition in Great Britain, Australia, Canada, New Zealand and the United States. Where needed, enabling legislation is coming through the parliamentary and congressional mills of these nations. New Zealand, Canada, and Australia, all of which still have frontiers, hope to accomplish two objectives: settle the veteran on a farm and increase the area under utilization. Where "free" land is scarce or non-available, as in Great Britain and the United States, the emphasis is on housing, rural or urban. In England, sites are already being assembled and pre-fabricated standard housing models have been approved. In a recent report to the nation, Winston Churchill visualized several hundred thousand young men and woman marrying and living in these temporary houses.¹

Mistakes to be Avoided

The World War II blueprint for farms and homes for veterans cannot be conceived in a vacuum; instead, cognizance must be taken of the experience in earlier postwar eras. Four major mistakes were made in the administration of earlier veteran land grant policies. Land was acquired by ex-soldiers during inflated price periods; applicants without farm experience were granted holdings merely on the basis of a desire for an idyllic "little white house with green acres";

inadequate supervision to effect efficient farm management resulted in the inexperienced farmer being left to shift for himself; ownership equities were too small to survive downward price spirals and in general initial interest rates were too high. Over a period of time, the cumulative effect of these administrative blunders was felt in each one of the countries having veteran land policies. In Canada and Australia, for example, about one-half of the land holdings acquired by ex-soldiers of World War I were liquidated during the twenties and thirties. The United States experience in earlier wars was equally disastrous; farm grants were used for purposes of land speculation in escalating price markets.

Farm-Grange Programs

To avoid the mistakes of previous experiments in farms for heroes, New Zealand, Canada and Australia all have provisions for a careful selection of suitable applicants. In New Zealand representative local committees classify all candidates on the basis of previous farm experience and aptitudes. Those who have the essential training and experience to manage their own farms successfully are termed "Grade A" and considered ready for farm ownership. Applicants without these qualifications are graded lower and are urged to undergo a period of training either at an agricultural college or on a farm. If the veteran attends a college, he receives a training subsidy; if, instead, he works on a farm he receives an amount from the government equivalent to the difference between current wages and his worth to the farmer.² To discourage veterans from assuming the obligations of farm ownership prematurely, the period in which application may be made extends for ten years after discharge from the armed forces. Back to the farm for the veteran has brought into existence a combination of loans and governmental subsidies, either direct or hidden, in Australia, New Zealand and Canada; the governmental grant of the last one mentioned is the most generous. For example, veteran

¹ Hon. Winston Churchill, Text of Broadcast Speech of March 26, 1944.

² New Zealand Embassy, "Report of Lands Committee on Soldier Lands Settlement," (mimeo.), Spring, 1944.

Howard Smith of Ontario has had his application accepted for a \$6,000 farm in which the Canadian government has invested \$4,800 for the land and buildings and an additional \$1,200 for the livestock. The applicant is required to make an initial payment of \$480 or ten per cent of the value of the real property and over a period of twenty-five years he must amortize two-thirds of the original cost of the land and buildings (\$3,200 in this case). Interest rate is at the low figure of $3\frac{1}{2}$ per cent. The balance, \$2,320 in this instance, is the Canadian contribution to this type of veteran rehabilitation, an amount equivalent to 24 per cent of the cost of the land and permanent improvements plus the value of the chattels. The subsidy is dependent upon two conditions: the veteran must meet the terms of his contract for the first ten years and he must accept the guidance of agricultural experts for a similar period. Until Howard Smith harvests his first crop, he is entitled to receive a subsistence grant; this prevents him from going into debt in the critical initial period of his farm enterprise.

In contrast to Canada, the primary emphasis in New Zealand and the United States is on loans rather than on subsidies. Loans are liberal in New Zealand, extending to 3,500 pounds sterling on land and an additional 1,500 pounds sterling for livestock and farm chattels. During the first few years, interest rates are exceedingly low, 2 per cent, and are increased in later years to a maximum of $4\frac{1}{8}$ per cent. In New Zealand there is also a recommendation that recipients of pensions for permanent disability be eligible for part-time farms, i.e., on plots of good land adjacent to cities. The combination of the monthly pension and income from the farm would be expected to provide an adequate livelihood.

The United States "G. I. Bill of Rights" has been heralded for its generosity to the veteran. Nevertheless, in its provisions for loans for the purchase of homes, farms and businesses, it is pursuing a more timid policy than that of New Zealand, Australia and Canada. The traditional American atmosphere of hostility to government enterprise has had a resurgence in the proviso that the government will act in the role of only partial guarantor for loans privately financed. The extent of the guarantee cannot exceed 50 per cent of the loan or a maximum of \$2,000;

interest rates charged by the banking institutions are limited to 4 per cent. To help the ex-soldier to make the adjustment, the government pays the interest for the first year on that part of the loan which it guarantees. Veterans who can convince the secretary of agriculture of their competence in farm management may secure the benefits of low interest rates and more liberal loans, provided under the Bankhead-Jones Farm Tenant Act, even though they have not the status of farm tenants.

Homes: Temporary and Permanent

Great Britain plans to meet the challenge of 1,000,000 homes (from a total of 11,000,000) destroyed or damaged by enemy fire. This destruction necessitates three frontal attacks; the first, on houses which although damaged can be reconditioned; the second, in the form of one-half million new units of temporary pre-fabricated housing; and the third, the long-term program, of permanent re-building.

Sites for the pre-fabricated houses are being assembled by local governmental authorities and demonstration houses have already been shown to the public. Each unit includes a bath, gas or electricity in kitchenettes and refrigeration. Perhaps the most publicized features are "fitted furniture . . . chests of drawers, hanging cupboards and tables." It is estimated that the market value of this furniture is about 80 pounds sterling. Ownership of these houses is to remain with the government so that, when a reasonable amount of permanent housing exists, they can be demolished. In the selection of tenants, veterans will be given preference; the expectation is that rentals for these accommodations will be moderate.

Australia and New Zealand, which have not been subjected to the "blitz," are able to think immediately in terms of permanent rather than temporary housing. The Australian ex-serviceman or his widow can acquire a house with an initial payment as little as 5 per cent of the value of land and buildings. He may borrow up to 950 pounds sterling and may repay the government in a period extending from 45 to 50 years. In order to push the program forward, the Australian Minister of Repatriation reports that at present sites for homes are being assembled by his organization.

New Zealand is even more liberal than Australia in its loans to enable the veteran to purchase a home. The New Zealander may take the initial steps without any capital of his own, may obtain a loan up to 1,500 pounds sterling and may receive an additional 100 pounds sterling furniture loan. In general, interest rates are low, a 2 per cent rate prevailing for the early years, and a maximum not exceeding $4\frac{1}{8}$ per cent; furniture loans are interest free. If the ex-soldier is totally disabled, about one-third of the furniture loan is given as a grant.

Little distinction has been made in the United States between financing a farm and a home in an urban community; in general, a possible governmental guarantee up to \$2,000 is available on loans which are privately financed.

Will These Programs Succeed?

Are current programs for homes and farms for veterans avoiding the mistakes of World War I? Will ex-soldiers be able to obtain land at normal rather than inflated levels? The trend to assemble land now and, if need be, to use the power of condemnation for the purposes of acquisition of sites is a decided attempt to cope with this problem. Are ex-soldiers without farm experience going to find themselves stranded in farm communities? Not if the training programs

developed by such countries as New Zealand prove effective.

Do sufficient incentives exist to motivate the veteran to hold his farm or home through the various aspects of the economic panorama? Initial cash equities as low as 5 per cent suggest that the ties to the soil may readily be severed. To counteract this, the Canadian subsidy of one-third of the purchase price of land and buildings is granted only at the end of ten years. May a desire to be generous to the veteran result in unsound economic investments? Repayments over a 45- or 50-year period, as in Australia, may extend both beyond the life of the improvements on the land and the borrower himself.

When the various members of the invasion army return to Great Britain, to Australia, to New Zealand, to Canada and to the United States, in each one of these countries they will find a blueprint for homes and farms. A vital part of the reorientation of the veteran to civilian life depends upon the answer to the question: Will these programs succeed?

The authors wish to express appreciation to the British Information Services, the Australian News and Information Bureau, the New Zealand Legation, and the Canadian War-Time Information Board for their cooperation in making materials available.

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Notes on the Recent Decline in Home Ownership

THE decade between 1930 and 1940 brought a reversal in the long-time increase in the proportion of home ownership in the urban areas of this country. From 1900 to 1920 the proportion increased from 36.5% to 40.9%, and by 1930 had been raised to 46.0%. But by the end of the next ten years, owner-occupied dwellings had decreased to 41.1% of the total. By decades, these changes were as follows:

Year	Percentage of Owner-Occupancy in Occupied Non-Farm Dwellings
1890	36.9%
1900	36.5
1910	38.4
1920	40.9
1930	46.0
1940	41.1

Source: 1940 Census of Housing, Vol. II, Table III, p. 3.

While it is true that the number of owner-occupied homes actually increased by 854,832 between 1930 and 1940, the reduction in the proportion of the total has been disturbing in some quarters. There are many persons and groups who feel that home ownership contributes to the development of important social values, responsible citizenship and political stability. There are other groups concerned with home financing, home building, and real estate marketing who have a somewhat more material interest in the expansion of home ownership. Home ownership is characteristically an American institution, and the frequency of ownership is greater than in any other nation.

A brief comparison of economic conditions in the Twenties (a decade in which the proportion of ownership increased more rapidly

than in any other like period) and the Thirties (when the proportion declined) will reveal the underlying causes of the reversal in the trend. In the Twenties there existed a combination of circumstances which favored home purchase. It was a period of rising incomes and favorable economic outlook; family savings accumulated rapidly; credit was easy and rents and values were rising until late in the decade; a housing shortage existed in the early years and urban areas experienced strong population pressures from in-migration, new family formations, and a natural increase exceeding all past periods. The building boom which reached an apex in the middle of the decade provided a liberal supply of new single-family dwellings.

In contrast to the Roaring Twenties, the decade of the Thirties opened with a deep, world-wide depression; unemployment was rife and incomes fell sharply. The economic outlook was dark and not until after the middle of the period did the economy show encouraging signs of recovery; family savings were wiped out; credit was frozen and the mortality of home ownership through foreclosure was high; out-migration and doubling-up created high vacancies in urban areas; building activity virtually ceased in the early years and it was not until the last years of the decade that the construction of single-family homes was resumed, and then at a rate far below the previous decade.

These contrasting pictures of the economic circumstances which condition the growth of home ownership explain the reversal of the trend in the proportion of owner-occupied dwellings. But it is illuminating to consider the forces which encourage tenancy and which are always present though the impact varies within different economic environments. On the demand side we find that families which enter into home ownership are characteristically families with children and that they are families who are established in the community with prospects of continuing employment. But those families which constitute additions to the total housing demand are not of this type. The in-migrants into the community do not become secure immediately and some time usually passes before they are ripe for home ownership. Newly-formed families of young people are often impecunious, uncertain of their future, and do not immediately feel the need for a home as a proper place in which to

raise a family. Thus both new arrivals in the area and young couples incline to seek rental quarters.

We are inclined to associate foreclosures with periods of depression. However, even in good times there are large numbers of owner families who find home ownership financially burdensome and who become tenants either through foreclosure or by the sale of their properties when the financial responsibilities can no longer be met. The causes are varied and not necessarily typical of the bottom of the real estate cycle. The provider may suffer a reduction or loss in income through a shift in occupation, unemployment, disability, ill health, or advancing age. The family may lose extra income which has been derived from a secondary worker or from taking in roomers. Furthermore, many families over-buy and eventually discover that they cannot meet the costs which, in an excess of optimism, had been too greatly discounted.

Many people overlook one of the most lethal destroyers of home ownership—family dissolution. In non-farm areas between 1930 and 1940 there were approximately 10,000,000 marriages but the number of married males in 1940 was only 3,400,000 more than in 1930.¹ Thus, some 6,600,000 families were dissolved during that period by divorce or by the death of husband or wife. It may be assumed that at least half of the families which suffer dissolution each year, or 330,000, are owner-occupants. This assumption is based on the fact that the proportion of home ownership is greater among older families. Thus, with the percentage of owner-occupancy among all families standing at 41 per cent, it is reasonable to suppose that at least one-half of those families which have reached the end of the cycle are owner-families. As our population increases and as it ages, with a larger proportion of older persons, the number of family dissolutions will increase above the present level. Divorce or the death of husband or wife does not bring about an immediate abandonment of the home in most cases. But it is inevitable that the original occupants ultimately will be gone, for the span of life is definitely limited.

It is true that the change in occupancy which sooner or later follows all family dis-

¹ Total marriages in the United States as reported in Bureau of the Census release Series PM-1, No. 1, July 4, 1944. Adjusted to reflect non-farm population only.

solution will not necessarily mean a shift of the unit from owner-occupancy to tenancy. However, the probabilities are in favor of such a shift for, the older a house becomes, the less attractive it is to prospective home purchasers. Since old houses are not demolished nearly so fast as new houses are produced, an increasing proportion of the total housing stock is composed of older structures as time passes. Thus the aging of families and the aging of properties combine to influence the shift to tenant occupancy. The most frequent purchasers of new single-family houses are young families with one or more children where the parents are from 25 to 35 years of age. As the years go by the children grow up and leave home. The aging parents find the home too large for their needs, or reduced income may make it burdensome to maintain. If they do not sell or rent their home they may remain until death separates the old couple, and the homestead finally changes ownership through sale or inheritance.

Concomitant with the progress of the family through the normal cycle from creation to dissolution is the change in the neighborhood from one of new houses occupied by young families to old houses occupied by a few survivors of the original inhabitants intermingled with successor families of mixed character, rooming houses, and even non-residential uses. The upkeep of the houses is likely to have been neglected and the structures become obsolete in architecture, lay-out and equipment. Thus neither the structures nor the neighborhood is any longer attractive to the younger families who constitute the bulk of prospective home owners. As the properties become older and less tenaciously held in the face of economic adversities, there is a rise in the incidence of foreclosure and loss of ownership through tax delinquency.

Turning now to the supply side of the picture, we find that rental accommodations are provided not only by units which have shifted out of the owner-occupant status but also by the addition of rentable units to the housing stock. These additions are provided both by new construction and the conversion or subdivision of existing structures. There is no measure available of the number or proportion of single-family houses which are built for rent. It is generally assumed that the majority of such houses are built by their owners for their own use, or are built for

sale by operative builders. Of course, a number of single-family houses, particularly in southern communities or in single-industry towns, are constructed with the intention of rental. Furthermore, operative builders are often forced to rent houses when buyers cannot be found. The Census reports show that in 1940 there were 3,360,000 single-family structures reported as having been built between 1929 and 1940. Of this number 970,000, or about 29 per cent, were tenant-occupied in 1940.² There is no evidence to indicate how many houses were intended for rent or were never owner-occupied and how many of them suffered a change in occupancy status.

The number of additional dwelling units produced through the conversion of existing structures is an elusive item because building permit records are not complete nor dependable. An estimate has been made that, from 1929 to 1940, about 725,000 units were added by conversion. Since this number includes only the *additional* units and thus is substantially less than the total number of dwelling units contained in converted structures, it seems safe to assume that at least 725,000 rental units were supplied by conversion and that the number of owner-occupied units in converted structures is no greater than the difference between the total units contained in the converted structures and the units added by conversion. In addition to new units created by physical change, it is estimated that some 345,000 rental accommodations were provided and occupied by the renting of light housekeeping rooms to tenant families.³

Some further light on the relative importance of the complex of demand and supply factors which increase the number of tenant families can be developed by attempting a crude accounting for the increase of about four million such families during the decade ending in 1940. The following tabulation sets forth a composite of fact and estimate covering urban and rural non-farm areas for the decade ending in 1940:

INCREASE IN OCCUPIED TENANT ACCOMMODATIONS		
1940 tenant households.....	16,334,937	
Adjustment for census reclassification.....	43,000	16,291,937
1930 tenant households.....	12,367,100	

² 1940 Census of Housing, Vol. III, part I. Table A-4.

³ *Housing and the Increase in Population*, Serial No. R 1421, U. S. Department of Labor, Bureau of Labor Statistics, U. S. Government Printing Office, 1942, Table 2, p. 12.

Less tenant dwellings demolished between 1930 and 1940 thus requiring substitute tenant accommodations.....	277,900	12,089,200
Total additional tenant accommodations to be accounted for....		<u>4,202,737</u>
<i>Increase Accounted for by:</i>		
Units in new multi-family structures.....	546,000	
New single-family units built for or shifted to tenant occupancy.....	967,400	
Tenant units added through conversion.....	725,000	
Additional tenant units provided in unremodeled housekeeping quarters.....	345,000	
Units which were vacant in 1930 but occupied by tenant households in 1940.....	722,300	
Balance to be accounted for by a shift from owner to tenant occupancy as a result of voluntary abandonment, foreclosure, and family dissolution.....	897,037	
		<u>4,202,737</u>

Each of the items in the tabulation calls for some explanation. From the 16,334,937 tenant families in 1940 we must deduct 43,000 which are included in the total because certain areas which were classified as rural in the 1930 Census were reclassified as rural non-farm in 1940. It is estimated that of the total of 397,000 units demolished during the decade, some 70 per cent, or 277,900, had been occupied by tenant families.⁴ Thus these families were deprived of their accommodations and, it is assumed, sought alternative rental units. The number of such families which purchased homes is thought to be negligible since the majority were probably in the lower income groups.

Units in new multi-family structures are with few exceptions offered for rent and it is estimated that 546,000 such accommodations were provided by construction during the decade.⁵

The 1940 Housing Census reports that 967,400 single-family structures which were constructed between the two Census dates were reported to be tenant-occupied in 1940.⁶ There is no basis for estimating the proportion of this number which were intended for tenancy and the proportion which were built for sale and either were never sold

or shifted from home ownership sometime after their original occupancy. The (estimated) number of additional units provided by conversion of existing structures, 725,000, and the 345,000 additional light housekeeping accommodations provided without structural alteration are properly assumed to be tenant-occupied.

It is estimated that there were 963,000 fewer vacant units in 1940 than in 1930.⁷ There is no dependable basis for determining what proportion of the units vacant in 1930 became owner-occupied and what proportion were rented. However, it is probable that a substantial share of the vacant units were among the least desirable portion of the total housing stock and that not more than 25 per cent, or 240,700, were sold into home ownership. Thus the balance, or 722,300, became tenant-occupied.

The residual item of 897,037 units is the most interesting and challenging of all. It has been assumed by many students of housing that the decline in the proportion of home ownership during the Thirties was largely accounted for by the large number of foreclosures which took place during the first half of the decade. The estimates presented in the table appear to deny the predominance of this factor. Available information on foreclosures is not helpful for there is no way of discovering either what proportion of total foreclosures were on residential structures, or the number of foreclosures on residential structures which affected owner-occupancy. Furthermore, the 897,037 figure contains a large number of units more or less permanently abandoned to home ownership by reason of family dissolution and the aging of structures and neighborhoods. It seems likely, therefore, that a large share of the homes foreclosed have been resold for owner-occupancy. Another pertinent fact is that the rate of foreclosure began to increase in the middle Twenties and was mounting rapidly at the end of that decade. Thus many homes had already been lost and appeared as vacant or tenant-occupied in the 1930 Census.

The relative importance of the aging of housing and families in the shift from home ownership may be crudely approximated by

⁴ *Ibid.*

⁵ U. S. Dept. of Labor, Bureau of Labor Statistics, unpublished estimates of data comparable to that appearing in the annual bulletin, *Building Construction*, 1941, Table 10, p. 19.

⁶ 1940 *Housing Census*, Vol. III, part 1, Table A-4.

⁷ Estimate of 1930 vacancies from *Housing and the Increase in Population*, BLS, R 1421, Table 2; 1940 vacancy from 1940 *Census of Housing*, Vol. III, part 1, Table A-5.

a somewhat questionable calculation. We earlier estimated that some 330,000 homes are subject each year to a change in ownership at or near the end of the family cycle by reason of family dissolution. The number of such homes which remained owner-occupied after the change in ownership is probably substantially less than one-half of the total; for, in general, the houses involved are old, obsolete and in the less desirable neighborhoods. Thus, the addition to the rented group from this source might be in the neighborhood of 200,000.

Another approach gives us a figure which represents the composite effect of all factors destructive of home ownership which are functions of the passage of time. The 1940 Housing Census reveals that in non-farm areas the proportion of tenancy tends to increase among single-family houses with the age of structures up to 40 years of age and then declines somewhat.

Age of Structure	Per Cent Rented
0-5 years	25.0%
6-10	34.5
11-15	34.7
16-20	38.5
21-30	40.6
31-40	43.7
41-50	42.2
51-60	42.0
61-80	41.3
81 or more	39.2

Source: 1940 Housing Census, Vol. III, part I, Table A-4.

If it were assumed that, as the structures in each age group move into the next higher group, the proportion of rented units shifts to the proportion for the higher age group, it is possible to calculate the total numbers of units which in ten years' time would shift from owner-occupancy to tenancy. Again, if the proportions of tenancy in a given age group are assumed to have been the same in 1930 as in 1940, we can calculate the number of units of the 1930 stock which were rented in 1940 but had been owner-occupied in 1930. This number works out to be about 400,000 or almost 4 per cent of the owner-occupied units in 1930. It is probable that this estimate overstates the change in tenure which

would normally have occurred with the passage of time during the decade and that a figure of 300,000 is more realistic. The estimate is based on differentials which existed in 1940—at the end of a decade during which the housing stock was subjected to strong forces destructive of home ownership. It is probable that older houses are more vulnerable to these forces than newer homes. Thus the differentials in home ownership among the age groups may be somewhat exaggerated as of 1940.

On the basis of available evidence the interpretation of the residual of 897,037 tenant units not otherwise accounted for thus appears to be that some 200,000 to 300,000 units shifted tenure in response to the forces of family dissolution and decline in desirability and that from 600,000 to 700,000 units were still lost to home ownership as of 1940 because of the exceptionally high rate of foreclosure and the unfavorable economic conditions which existed during the first half of the Thirties.

The latent market forces which will be released at the end of the war are sure to make for a great increase in home ownership. There is a vast backlog of demand for homes on the part of families which are both ripe for home ownership and financially capable of home purchase and support.

Estimates of the annual postwar volume of residential construction run to one million or more units per year for a ten-year period. Particularly in the early years, the majority of new construction will take the form of houses built for sale. Furthermore, as already evidenced throughout the country, there is a strong demand for the purchase of existing housing by families who are forced into home purchase through lack of alternatives. If the European phase of the war should end in early 1945, home ownership promises to recover much of its lost ground by the time of the 1950 Census.

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Editorial Note on Public Utility Financing Reports

THROUGHOUT the twenty years of its continuous operation this *Journal* has published articles on the volume of public utility financing. They are presented as quarterly analyses with a yearly summary for the preceding period appearing in the first issue of each volume. Because of the present wartime conditions it has become increasingly difficult for the present authors to secure and compile this information. However, their work has been appreciated as evidenced by the reader response and by the requests for reprints; and the *Journal* will continue to run the articles. During the early years the names of Peter Leininger and E. D. Ostrander appeared frequently as authors of these reports. More recently R. G. Dudley, W. H. Evans and O. P. Deuel have carried the responsibility. (Within the past year R. G. Dudley has been called into the armed forces.)

Public Utility Financing in the Third Quarter of 1944

TOTAL public utility offerings amounted to \$238 millions in the third quarter of 1944, as compared with \$114 millions in the third quarter of 1943 and \$100 millions in the second quarter of 1944. The cumulative total of public utility financing for the first three quarters of 1944 is \$566 millions and exceeds the volume for the comparable periods of 1942 and 1943. The number and amount of public utility security offerings have steadily increased in each quarter, beginning with the second quarter of 1943, but they have not as yet reached the prewar level. The bulk of the new issues continue to be for refunding purposes.

Public utility long-term debt issues sold publicly in the third quarter are shown in Table I. There were ten issues offered, totaling \$157 millions. The weighted average offering yield was 3.07% and the cost to company 3.21%; while underwriters' commissions averaged 1.40% and incidental expenses .82%. Underwriters' commissions and incidental expenses were about equal to the average for 1943.

There were five issues offered to yield less than 3%, the lowest yield was obtained by the Connecticut Light and Power Company's \$10,000,000 first and refunding mortgage 3's of 1974, offered to yield 2.72%.

Public utility long-term debt issues sold privately in the third quarter of 1944 are listed in Table II. There were seven issues offered and the weighted average offering yield was 2.94%, slightly lower than the

weighted average of issues offered publicly. Most of the issues offered were small and the total of \$16.6 millions was only one-ninth as large as the public offerings of long-term debt in the third quarter of 1944. It appears that the small issues can still be marketed more favorably through private channels. The trend toward publicly-sold issues began in 1941 and has continued through 1942, 1943 and 1944.

Preferred stock issues floated in the third quarter are shown in Table III. There were nine issues offered, totaling \$63.6 millions in principal amount. This quarter's total is the second largest recorded since this series began in 1936. The largest total was offered in the first quarter of 1937 when \$85 millions was reported. If the present trend continues in the fourth quarter, preferred stock financing in 1944 will approach or exceed the prewar level. The weighted average offering yield in the third quarter was 4.26%. One issue was offered to yield less than 4%. This was the Idaho Power Company's 4% preferred stock, totaling \$6,058,700 in principal amount sold at \$102 per share to yield 3.92%.

There were no serial issues offered in the third quarter of 1944. Serial issues have fallen off appreciably in volume during 1944

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TABLE I. SUMMARY AND ANALYSIS OF PUBLIC UTILITY LONG-TERM DEBT ISSUES OFFERED PUBLICLY, THIRD QUARTER 1944

Company & Issue (A)	Coupon Rate (B)	Principal Amount (C)	Maturity Date (D)	Month of Offering (E)	Offering Price (F)	Offering Yield (G)	Under- writers' Com- missions (H)	Proceeds to Company (I)	Estimated Incidental Expenses (J)	Net Proceeds (K)	Cost to Company (L)
Hawaiian Electric Co., Ltd. First Mortgage.....	3½	\$ 5,000,000	1964	July	105.00	3.16	1.75	103.25			
Jacksonville Gas Corp. First Mortgage.....	4	1,745,000	1969	July	104.00	3.26	2.00	102.00	1.03	100.97	3.94
New Orleans Public Service Co., Inc. First Mortgage.....	3½	34,500,000	1974	July	103.87	2.93	1.07	102.81	.61	102.20	3.02
Mississippi Power & Light Co. First Mortgage.....	3½	12,000,000	1974	August	104.49	2.90	.97	103.52	.79	102.73	2.99
Birmingham Electric Co. First Mortgage.....	3	10,000,000	1974	September	101.00	2.95	.87	100.13	1.05	99.08	3.04
Brooklyn Union Gas Co. Gen. Mortgage Sinking Fund.....	3½	30,000,000	1969	September	102.50	3.35	1.40	101.10	1.40	99.70	3.51
Brooklyn Union Gas Co. Debentures.....	4	12,000,000	1969	September	102.87	3.82	1.80	101.08	.78	100.30	3.99
Connecticut Light & Power Co. First and Ref. Mortgage.....	3	10,000,000	1974	September	105.75	2.72	1.00	104.75			
Empire District Electric Co. First Mortgage.....	3½	10,600,000	1969	September	106.92	3.10	1.19	105.73	.83	104.90	3.21
Ohio Edison Co. First Mortgage.....	3	30,962,000	1974	September	102.50	2.87	1.08	101.42	.41	101.01	2.95
Total or Weighted Average.....		156,807,000			103.49	3.07	1.40	102.28	.82*	101.26*	3.21*

* Information not available.

* Excluding issues for which information is not available.

TABLE II. SUMMARY AND ANALYSIS OF PUBLIC UTILITY LONG-TERM DEBT ISSUES OFFERED PRIVATELY, THIRD QUARTER 1944

Company and Issue (A)	Coupon Rate (B)	Principal Amount (C)	Maturity Date (D)	Month of Offering (E)	Offering Price (F)	Offering Yield (G)
	%	\$			%	%
Home Gas & Electric Co. First Mortgage	3 1/4	850,000	1969	July	1	1
Providence Gas Co. First Mortgage	3	3,300,000	1974	July	102.00	2.88
Central Electric & Gas Co. Mortgage Bonds	3 1/2	2,000,000	1974	August	105.75	3.20
Central Telephone Co. Mortgage Bonds	3 1/2	3,100,000	1974	August	105.75	3.20
Derby Gas & Electric Corp. Debentures	3	1,450,000	1954	August	100.00	3.00
Illinois Commercial Telephone Co. First Mortgage	3	5,750,000	1974	August	105.74	2.72
Petersburg & Hopewell Gas Co. First Mortgage	3 1/4	200,000	1969	September	100.00	3.25
Total or Weighted Average		16,650,000				
Total (Excluding issues for which data are not available)		15,800,000				2.94

¹ Information not available.

TABLE III. SUMMARY AND ANALYSIS OF PREFERRED STOCK ISSUES OFFERED THIRD QUARTER 1944

Company and Issue (A)	Dividend (B)	Principal Amount (C)	Month of Offering (D)	Offering Price (E)	Offering Yield (F)
	%	\$		\$	%
Idaho Power Co. Pfd. \$100 Par.	4.00	6,058,700	July	102.00	3.92
Mississippi Valley Public Service Co. Cum. Pfd. \$100 Par.	5.00	1,500,000	July	104.00	4.81
Montana-Dakota Utilities Co. Cum. Pfd. \$100 Par.	5.00	2,089,450	July	99.00	5.05
New Orleans Public Service, Inc. Pfd. \$100 Par.	4.75	7,779,800	July	106.50	4.46
Empire District Electric Co. Cum. Pfd. \$100 Par.	5.00	670,000	September	102.00	4.90
Gulf States Utilities Co. Pfd. \$100 Par.	4.40	12,000,000	September	106.00	4.15
Indiana & Michigan Electric Co. Cum. Pfd. \$100 Par.	4.125	12,000,000	September	103.125	4.00
Northern Indiana Public Service Co. Cum. Pfd. \$100 Par.	5.00	3,469,200	September	103.50	4.83
Ohio Edison Co. Cum. Pfd. \$100 Par.	4.40	18,000,000	September	103.00	4.27
Total or Weighted Average		63,567,150			4.26

Book Reviews



Cities of Latin America. By Francis Violich.
New York: Reinhold Publishing Corporation,
1944. pp. 241. \$3.50.

This comprehensive report by a planning technician should go far to broaden our understanding of the urban problems of both of the Americas, for it is a record of the contrasts between the continents as well as those within the Latin American republics. The following brief illustrates the views of the author as expressed in this extraordinarily interesting and informative book.

There are four major ways in which Latin American cities differ from ours: (1) In their age since settlement—Latin America had a long tradition of planning behind her when cities in the United States were just beginning to be built under the impetus of speculative land booms. (2) In their uneven economic and industrial development, due to the need of exporting to world markets rather than producing for the needs of the people. (3) In the concentration of population in a few major urban areas in contrast to a relatively over-all distribution. (4) In the strong influence from Europe which is still predominant in the cities of Latin America, and which is only an echo in the States.

The problems of the Latin American cities are physical, economic, social and political. Recent growth has been uncontrolled on sites that in some cases (La Paz, Rio de Janeiro) were unsuitable for such great expansion. Transportation is inadequate. Information on present conditions frequently does not exist. If planning is to be successful, a complete compilation of information about the problems of a physical nature must be made. Speculative building in those countries which are experiencing a building boom (Mexico, Colombia, Bolivia) has caused problems similar to those in the United States. Two basic conditions must be changed before the process of democratic planning can become effective—the income of the

masses must be elevated and the base of education must be widened.

Housing is one of the most important aspects of city building, and two-thirds of Latin America lives in slums described with vividness by Mr. Violich. Clearance and rebuilding of these areas would help to correct the warped economies of the republics; yet, with an improvement in housing must come education in standards, a raising of wages, and a development of the building industry and of skilled technicians.

However, much has been accomplished by Latin American city builders and the author compares the progress made by various republics in detail—city, regional, and state. He finds that, in view of the complexity of her problems and the turbulence of her history, Latin America has actually done more for her cities than we have. Because each Latin American country has different characteristics, programs differ. Some have national programs (Chile, Brazil, Ecuador, Bolivia); in some the initiative has been taken by cities (Mexico, Colombia, Guatemala). In the absence of an organized real estate and home-building industry, and where there is no national legislation, middle-class housing has sometimes been undertaken by semi-public banks and private institutions. In some cases, social security funds have been used to finance housing. In relation to the volume needed, little low-cost workers' housing has been built.

The war has opened a new period in the development of Latin American technical and social planning. There are enormous opportunities for doing the job that has not been done during four hundred years of European domination. At this turning point we find two new trends of thought—shifts of focus. First, there is a shift to emphasis on local needs and resources. The trend toward development for economic independence had already started and has become one of the main objectives of Latin America in the war.

The second is a shift in focus from Europe to the United States. The Latin Americans

want the kind of assistance that will allow them to raise their standard of living and achieve a democratic freedom. They feel that we have experience to offer them in the technical and industrial fields.

On the other hand, we can learn much from the Latins. "With nothing like the wealth and resources of the United States, Latin technicians . . . are building cities which outrank ours in the use of imagination and the provision of facilities for rich social living." We can make better use of our waterfronts, of our areas of recreation; we can act with more boldness in planning our own rebuilding program. We can also learn from the Latins by studying their policies on use of public lands for the good of the people.

At the same time the Latin Americans are behind us in technical skill and industrial advancement and feel that the greatest aid we can offer them is in these fields. Mr. Violich has listed ten ways of achieving the objectives of a well-rounded program of city and regional planning. His proposals are predicated on the belief that solution of the problems requires two-way cooperation and are based on the principle that we have as much to learn from the Latins as they do from us. It is predicated also on the belief that private group action in matters of Inter-Americanism counts for more than does official governmental action.

He feels that "we have it in our power to look ahead and build cities worthy of free men," if we utilize all the resources available in the reconstruction of the cities of the Americas. "Where the past has been an age of colonization, invention, and exploitation, we may now embark upon a period of intensification, stabilization, and cooperative understanding."

There is appended a bibliography, and a list of Latin-American technicians, and a good index.

JACOB CRANE

*Urban Land Development Director,
National Housing Agency*



Financial Accounting (A Distillation of Experience). By George O. May. New York: The Macmillan Company, 1943. pp. 265. \$3.00.

Here is a book which should be read by all who are seriously interested in understand-

ing accounting. Mr. May draws from his experience numerous "distillations" that help to explain present-day accounting. Historical development, the conflict of opposing theories and of different ends, the opposition of current practice to that which would sometimes appear to be more desirable, the determinative influence of various, interested authorities, etc., are brought together in such a manner as to reveal financial accounting to be the resultant of numerous forces. The treatment is focused both upon accounting as a whole and upon a number of specific sub-topics: depreciation, inventories, liabilities, income, statements, regulations.

Mr. May sees clearly that accounting is a limited thing and that it frequently encounters difficulties because of the out-of-bounds utilities which its enthusiasts too frequently ascribe to it. Accounting, as it is practiced, is not an all-purpose thing; it does not serve all of the uses to which it is put equally well. In fact, under certain circumstances it may actually be misleading. It is necessary, therefore, that both accountants and the public understand these facts. Mr. May is to be congratulated upon the clarity with which they are set forth. Traditional accounting is, in the main, an historical account of transaction experiences. Certain exceptions are accepted but these are understood and allowed for.

There are purposes other than the usual orthodox ones which would be better served by the use of current values, but May believes that generally it would be difficult to provide information of this sort with any degree of reliability. He suggests, however, that current information may well be supplied on an "extra-informational" basis whenever it is practical to do so.

May is also to be commended because he perceives the extent to which accounting results are limited by the contrary-to-fact assumption that the value of the monetary unit remains stable.

The recent shift in accounting emphasis to earnings and their use in determining capitalized value apparently meets with approval. It is not evident that May sees as clearly as he sees other accounting limitations that a non-uniform, conventionalized accounting has great limitations in this respect also. Earnings and capitalized value have greater meaning from the standpoint

of the relative and the comparative, rather than from the standpoint of any absolute. The very use of a market capitalizing percentage confirms this. Differences resulting from variations in accounting applications are meaningless until they are reconciled in terms of the logically desirable. Earnings would have more meaning for purposes of capitalization if they were computed on the basis of current rather than historical data.

May advances the thesis that accounting rests upon convention—that it is “the product of experience rather than of logic.” Running throughout the book is the apparent assumption that there is a gap between the two. The book itself, however, is a partial refutation of this thesis; it is replete with illustrations of the application of logic and the denial of a convention. Many of the committees through which May acquired a part of his “distilled” experience were designed to find better ways of doing things by thinking them through. It would be of advantage to the future of accounting if it could consciously be granted that accounting is something that can be improved by thinking; that the end which is required to be served is social welfare and not convention. Such an approach would definitely place accounting on the road marked progress.

GEORGE R. HUSBAND

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Wayne University*



Airports and the Courts. By Charles S. Rhyne. Washington, D. C.: National Institute of Municipal Law Officers, 1944. pp. 222. \$5.00.

This study is devoted to the legal problems in the airport and aviation fields which face the legal officers of American municipalities. New legislation and new court decisions are needed in order to meet the problems raised by the present “air age.” All the decisions of state and federal courts bearing on this subject are presented and analyzed. The following matters are dealt with: airport acquisition; condemnation of property for airport purposes; airport leases; regulation governing use of airports; taxation of airports; damage claims against airport owners and operators; air space rights of aviators and

landowners; and airport zoning. The protection of airport approaches from dangerous obstructions is no doubt the outstanding legal problem relating to airports. Federal and state courts have held that the zoning of areas adjacent to airports used by the general public can be carried out by state and local governments in the exercise of the police power. The author does not fail to point out that zoning laws and ordinances are designed as a future protection. Existing airport hazards can be removed through condemnation proceedings. One of the most interesting chapters is that which deals with the theories of air space rights. The substance of the courts’ decisions is that ownership of air space does not exist. The nuisance theory is best adapted to protect the landowner against actual damage. The book is especially valuable because of the table of court decisions.

HENRY R. TRUMBOWER

University of Wisconsin



Understanding New Zealand. By Frederick L. W. Wood. New York: Coward-McCann, Inc., 1944. pp. 267. \$2.75.

Mr. Wood has distilled an excellent interpretation of the social, economic, political and physical forces that have shaped and are still shaping the pattern of life in New Zealand. The book is not designed for specialists in labor relations, in land utilization or in race relations, but all specialists will gain a great deal of insight into their own field by seeing the relationship that it bears to other segments of the society. The more general reader will find a fascinating story of how a modern progressive society developed, the problems and conflicts which still remain to be solved, and how rain, grass and livestock tied a new country to an old.

The book first gives one a broad background of history. The colonization by the British in the early nineteenth century, the conflicts of pioneers with missionaries who wished to protect the Maoris, the establishment of the Colony and broad political development up to the present are sketched in the first chapter. The much earlier history of the Maori civilization, its adjustment to a new and harsher climate, and even more difficult adjustment to an aggressive new

population is told with insight and sympathy. Then follows a chapter on geography and economics and one on the social organization which reveals a strange local provincialism associated with national pride and world contacts.

Following this background, which gives one the feel of knowing a good deal about underlying forces, are a series of chapters dealing with the providential march of social equality, government, farming, industry, education, gentle arts and the Maori people. These more detailed analyses are then followed by three chapters which show New Zealand's relationships in world affairs and the impact of the war on her economy and ideas. The book closes with a beautiful prose picture of how a New Zealander sees his country with its deep forests and high mountains, its native birds and trout fishing, its sense of ethical values and incurable habit of gambling.

Any student of contemporary social and economic problems in this country will find that a clear picture is given of how New Zealand has attempted to solve very similar problems. Before reading this book I heard Walter Nash explain to a small discussion group how the New Zealand farmers had refused to accept the responsibility of determining the prices of agricultural products and had delegated this to a board. The farmers wanted price stabilization and, of course, high prices; but they recognized that they could not determine prices. This same point of view, so diametrically opposed to our parity price concepts, is based upon a whole series of factors such as dependence upon export outlets, the individualism and independence of groups who want to stand on their own feet, the fact that the economy is small and a large subsidy to agriculture through high prices would place excessive burdens on other segments of the economy, and a very realistic understanding of basic economic relationships. It is in revealing these interrelationships and springs of social action in New Zealand that the book becomes an exceedingly valuable addition to the literature dealing with social planning.

In addition to being well and interestingly written, the book contains an insert of twenty-four pages of photographs, an excellent discussion of the most important

books on New Zealand, and an adequate index.

ARTHUR C. BUNCE

*Board of Governors of the
Federal Reserve System*



Palestine, Land of Promise. By Walter Clay Lowdermilk. New York: Harper & Brothers, 1944. pp. 236. \$2.50.

Dr. Lowdermilk has for twenty years "read the impact of past civilizations on the lands of China, Korea, Japan, Europe, North Africa, South Africa, the Near East, as well as our own beloved country." With this background superimposed on a Rhodes Scholarship and a Ph.D. in forestry and geology, he spent three months in Palestine in 1939. Like so many of the scientists of the Department of Agriculture, he is ultimately a humanist, concerned with the land for what it means for people. This small book is thus a fascinating document of the transformation of a conservationist and soil scientist into a Zionist. For many, it is the most compelling kind of document because it is grounded on no preconceptions or biases other than what the earth records dictate.

It seems clear that classical Palestine supported several times the present population. The agricultural archeologist can find the record of the causes: a thousand years of careful husbandry involving terracing, forestry, and other conservationist practices maintained alike by Jews, Romans, and Byzantines, ending only in the Eighth Century A. D., when nomad Bedouins overran the land. "It is estimated that over three feet of soil has been swept from the uplands of Palestine since the breakdown of terrace agriculture." Yet modern soil science gives us courage to believe that the ravages of a thousand years can be made good: We have the technology, the project is economically feasible, and the governmental machinery has been forged in our own Tennessee Valley. A Jordan Valley Authority is the vehicle through which Palestine's promise can be brought to realization.

Dr. Lowdermilk makes the problem of Palestine more vivid to me than any one else has made it by stressing the remarkable likeness of the earth forms, climate and flora

to those of Southern California. There are the parallels of rainy and dry seasons, the humid winds swept off western waters by prevailing westerly winds and losing their moisture against inland mountains, with resulting deserts on the eastern sides of the ranges. The Colorado River and the Jordan, the Salton Sea and the Dead Sea, Mount Baldy in the San Gabriel Mountains and Mount Hermon, the San Bernadino Mountains and the Jebel Druz, the Santa Ana valley and the Palestinian Maritime plain all present striking similarities. "Moreover, the Jordan Valley offers opportunities for developing as unique and remarkable a power project as Boulder Dam and the Los Angeles Aqueduct, but at a much lower cost." Geologically, Palestine is more favored because its limestone formations absorb the winter rainfall and issue it as great springs in the depths of the valleys, unlike California's impenetrable rocks. The level of water seems the same in wells that are two thousand years old: "We know that the climate and rainfall have remained essentially the same in this region for several million years."

Dr. Lowdermilk is constantly able to buttress his arguments by references to parallel experiences: "The practicality of using flood waters to irrigate the Negeb is confirmed by successful American experiences in Southern California." Land costs are "much more than the same type of land would sell for in Southern California." "These measures remind us of how cultivated outwash fans in Southern California must also be protected from torrential winter rains." If I stress this aspect of the book, it is only because it has helped me more than anything I have read or heard to visualize the problems of Palestine and to feel confident that he is talking about realizable and practical proposals.

Considering the Jordan River development, Dr. Lowdermilk canvasses every aspect of this multiple purpose project—from mineral extraction from the Dead Sea and industrial uses of electric power to irrigation (a la Grand Coulee) by pumping water over the mountains to the Plain of Esdraelon. After his visits to the colonies established in the last fifty years where in cooperative undertakings the Jewish pioneers have reclaimed malarial swamps and eroded hillsides, he has become confident that the

project can be made to succeed. "Jewish settlement in Palestine is one of the very few instances in which European colonization has raised the standards of the native population."

In this brief review it has not been possible to convey adequately the closeness of reasoning and the breadth of thinking which lead Dr. Lowdermilk to estimate that Palestine could absorb four million refugees from Europe above the 1,800,000 Jews and Arabs who now live there.

CHARLES S. ASCHER

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The Field Seed Industry in the United States.
By Frank Victor Beck. Madison: University of Wisconsin Press, 1944. pp. 230. \$3.00.

This book should serve as a beginning for a series of studies on seed production and marketing in the United States. Such studies should inspire a continuous collection and publication of production and price data. Ten types of biennial and perennial meadow and pasture seeds are covered as far as data are now available. Annuals such as rape, vetch and peas are not included.

Early colonial history respecting field seeds are reviewed as an introduction; then available statistics are reviewed to show the limitation of data available and the problems and confusion which have confronted the seed trade. Fluctuations in acreages and yields and the by-products and supplementary nature of field seed production are shown to be problems affecting adversely orderly procedure in marketing. Geographical fluctuations in demand as well as in supply add still more to the perplexities of dealers. Short seasonal demands add further to the risk in carrying seeds from harvest time and often from year to year.

Wholesale price quotations have recently been compiled for many years and their display in this book should be of value to all who trade in these seeds. An effort has been made to show relationships of seed prices to the prices of other farm products. Prices of milk and prices of pasture and meadow seeds show considerable relationship. Prices

of the seeds fluctuate with the large trend in the general price level and during wartime attain extremely high levels. Seed regulatory measures are traced briefly as are trade barriers, tariffs, etc.

The Field Seed Institute of North America together with the government are proceeding to improve the statistical background for the seed trade. Various methods are discussed for forecasting yields and acreages of clover and other field seeds. For example, the condition of crops such as barley can be used as an indicator for the yield of timothy seed.

Maps showing surplus-producing areas for these seeds are clear and well done. It is brought out that field seeds are traded extensively among farmers whose production is usually limited to a few bushes per farm. This feature of the market makes estimates of probable local demand by retailers exceptionally hazardous. Cleaning and carrying charges, together with price risk, have made wholesale margins wider than those of retailers. Statistics on imports are given in table form for the years 1907-40. Export figures are given for the years 1885-1940.

In general this book is a handbook of information on ten field seeds. The table of contents is exceptionally clear and well arranged to permit finding any desired classification of the contents. The only criticism is that it should cover annual field seeds as well. This book should stimulate similar activity along the line of garden seeds which are becoming a large business in Idaho and some other western states.

The reviewer is convinced that the lack of a body of information of this kind and of current crop reports has made the seed business hazardous for dealers and growers alike and has limited competition in commercial areas to a few dominant dealers. Growers have had no means of comparing their prices to that of wholesale and retail prices. Only with the formation of seed growers' cooperatives and of farmers' supply cooperatives have farmers discovered the width of handling-margins. With only a portion of these margins going to growers, seed production will probably be stimulated to increase the supply and eventually to reduce prices to consumers. High quality can also be rewarded and poor quality penalized. It is doubtful if, in any other field of agriculture, cooperation can pay such

handsome financial rewards and social benefits, and can result in so much conservation of the farmers' energy and soil. The author should be congratulated for arming everyone in the seed trade for greater efficiency.

PAUL A. EKE

*College of Agriculture,
University of Idaho*



State Taxation of Metallic Deposits. By Warren A. Roberts. Cambridge, Mass.: Harvard University Press, 1944. pp. 393. \$4.50.

The field of mine taxation is so rich in economic and political problems, and in illustrations of economic principles, that the limited lack of adequate literature about it seems extraordinary. Professor Roberts' book explores this field and his work will provide stimulating reading for economists and political scientists generally.

The author states, as his main purpose, "the study of democratic government, and of the ways in which, given the type of freedom enjoyed in few of the countries of the world, men may smoothly and speedily arbitrate their differences." More specifically he depicts the play of political forces which influence mine-tax legislation and administration in the states. Relatively large and profitable companies owned by nonresidents are especially vulnerable politically: They cannot vote, they have little interest in government services, and in many districts they provide the principal portion of the tax base. They have the advantage of social prestige and effective leadership, and they use the weapons of propaganda and sometimes "pecuniary pressure." (The latter is preferable to violence and, if not to be condoned, at least can be understood.)

The author seeks to describe the results of mine taxation in terms of an equilibrium of political forces. "As the economic effect of the tax becomes more doubtful and the actual or threatened cost to the beneficiary equals the utility of the tax itself, the beneficiary limits his demand for public services, or turns elsewhere for revenue, even to himself." The interests of local groups may be pitted against those outside the mine district (state versus local tax). Obviously, the political factors involved in mine taxa-

tion have a wider application in the whole field of public finance.

The author minimizes the possibility that political groups may seek a common end of justice and the social good. The field, according to him, is one of unmitigated self-seeking and warfare. This may lean too far in the direction of "realism," but the author's contribution in depicting political competition and balance of power is first-rate.

The author is not equally successful in analyzing the economics of mine taxation. He analyzes the income from mines and finds it composed of costs, rent, quasi rent, and profits. Rents may seem to be a surplus especially amenable to taxation, but this is subject to the qualification that there must be an incentive for new prospecting. He considers factors determining the volume of output and the bearing of taxes on conservation through the effect of levies on the profitability of marginal mining. But there appears nowhere an incisive treatment of the effect of the various types of levies on prices (incidence) and their relative effects on marginal mining.

Ad valorem taxes are criticized for their uncertainty in administration and the author expresses a preference for some form of gross-net tax. But it is not explained how the level of a gross-net tax can be properly determined without at least equal uncertainties arising.

Much of the book is devoted to case studies of mine taxation in the principal mining states. The studies contain much dramatic episode; they make good reading and are well and objectively done.

On the whole, the study is a commendable contribution, particularly in its illumination of power politics in the tax field.

HAROLD M. GROVES

*Professor of Economics,
University of Wisconsin*



A Development Plan for Puerto Rico. By National Resources Planning Board (Frederic P. Bartlett, Louis Sturcke, Jr., Donald F. Griffin, Brandon Howell). San Juan, Puerto Rico: Insular Procurement Office, Puerto Rico Planning, Urbanizing, and Zoning Board, 1944. pp. 66, 25c.

Widespread concern over the fact that population in Puerto Rico is increasing far

beyond the resources makes this analysis of the problem and the proposal of a development plan particularly timely. The problem of Puerto Rico has been examined and reported on many times before. All reports point out that the land available for cultivation is limited to approximately 1 million acres, or about one acre for every two persons; that improvement of production has been insufficient to support adequately an increasing population, yet population has doubled since 1900 and is increasing at the rate of more than 30,000 per year.

Before 1941, the authors indicate, Puerto Rico was becoming increasingly tied to the United States by export and import trade and was therefore becoming less self-sufficient. War may reverse this trend for, with decreased imports, some agricultural land has of necessity been devoted to low cash value, but mostly to high food value food crops for home use instead of to high value export cash crops. Likewise, the war has encouraged development of some small industries using local materials to supply local necessities. Nevertheless, as the report shows, acreage in farms has declined due to erosion, drought, hurricane damage, and abandonment of land unsuited to cultivation and extension of nonfarm uses. A great part of the land is low in potential productivity and about three-fourths of it should have intensive practices for long-time maintenance in production.

At the same time, land in farms is being used more intensively, and production, particularly sugar cane, has greatly increased in the past 40 years. Sugar cane is the basic money crop around which much of the island's economy revolves, comprising over one-fourth of the crop acreage and representing the best agricultural land. While it is produced on many small farms, the bulk of the cane production is centered on a relatively small number of large plantations. Other crops in order of acreage include coffee, corn, sweet potatoes, beans, tobacco, rice, vegetables, and cotton. The livestock industry is also important for production for local use, but because of scarcity of open pasture land, lack of knowledge of animal husbandry under tropical conditions, and means for development of brush lands for pasture, there has been little increase in livestock. Since the best lands and most attention have been devoted to sugar cane

and the smaller farmers who grow the bulk of the food products possess only limited means and skills, food crop yields are not as high as the average for the United States.

From their analysis of resources, income and people, the authors conclude that the problem of Puerto Rico is based on three interacting factors which form a vicious circle of cause and effect. These factors are poverty, discouragement, and the increase in population beyond the means of support. They point out that if poverty and discouragement can be appropriately reduced by increased income, better living conditions, and adjustment of population growth to the available resources, a good beginning would be made in the solution of the whole problem. The first step in the solution of the whole problem would be to stabilize the political status of Puerto Rico. Four possibilities are discussed: (1) independence, (2) statehood, (3) present colonial status and (4) voluntary federation or dominion status. It is pointed out that, under either independence or statehood, questions of mutual responsibilities and varying self-interests automatically help solve themselves; but under the indefinite colonial status in which Puerto Rico now finds itself, the question of mutual responsibilities and powers must be consciously determined by the United States with whatever collaboration the Island can give. An attempt is made in the report to set up the financial and social considerations and responsibilities involved under independence, statehood, the present colonial status, and voluntary federation dominion status. From the discussion in the report, voluntary federation appears to have advantages to both parties to the contract. Puerto Rico could plan its own future and could arrange to continue its profitable trade with the United States without risking immediate loss of income; but the United States would no longer underwrite continued expansion of population. However, it is concluded that purely pecuniary considerations are not the sole criterion; to some extent, responsibility for one's own destiny is worth values which money cannot buy.

The goals to plan for are examined. Chief among these are minimum food, clothing, housing, and health standards adapted to Puerto Rico. This examination indicates that achievement of these minimum standards would call for doubling the income of 300,000

of the Island's 350,000 families and, in addition, providing for a net increase of approximately 6,000 families a year.

In outlining a plan for Puerto Rico's rehabilitation three basic means of attacking the problem of want and higher standard of living are examined. The first means named, that of increasing the total amount of federal assistance, is rejected. Further continued reliance on outside help except during real emergencies is considered unrealistic and undesirable since such help may only aggravate the problem by not encouraging needed local reforms, expansion of resources, or adjustments in population to resources, and may prevent the development of a feeling of self-reliance and responsibility prerequisite for attainment of other objectives.

The second approach to the problem is that of increasing the productivity of the Island's land, capital and labor, for any deficit area should first utilize all its own resources, including its labor to the fullest extent, before calling for outside assistance.

Among the report's more outstanding proposals for increasing productivity are: (1) Intensification of the use of fertilizers, conservation practices, improved crops, and modern machinery on the arable area. With increased mechanization some land now used to produce feed and pasture for draft animals could be used for local food crops. (2) Production of more food crops with less dependence on outside areas. This could be done by a fuller use of labor throughout the year, more intercropping, irrigation, drainage and clearing of suitable lands not too costly to develop. (3) Encouragement of production of livestock and livestock products by development and improvement of more pasture lands in nonarable areas, making use of local grasses, using local materials for concentrates including feeding molasses, use of trench silos in suitable areas, and development of local breeds of cattle adapted to Island conditions. (4) Development of woodlands to produce forest products for local farm needs, such as wood, charcoal, stakes, posts, poles and lumber for furniture and buildings.

Much also depends upon a system of land tenure which will encourage the growth of a body of small farmers with an interest and stake in their own land. The desire for land is very real, as indicated by recent legislative action. The Land Authority Act of the

Puerto Rican Legislature provides for a wider distribution of land ownership yet with some of the advantages of skilled managership and machinery for special crops requiring large-scale operations such as sugar cane. It does this by setting up small lots for agricultural wage earners, and by providing proportional benefit farms where it appears unwise to divide the land required for efficient production of commercial crops. The Land Authority Program has been supplemented by that of the Farm Tenant Purchase Program of the Farm Security Administration which has developed family-sized farms for production of food and feed crops along with crops for cash income. The land improvement work of the following agencies is important also; Water Resources Authority, Federal and Insular Forest Services, Soil Conservation Service, and the Puerto Rico Reconstruction Administration. While these programs have been in operation only a few years, the results appear promising. The authors suggest that these programs be expanded and continued.

The third approach suggests ways the people may be adjusted to the resources available and their planned expansion, and finally the patterns of income distribution are examined for ways to effect a wider distribution by reducing payments to outside capital and equalizing domestic inequalities.

Among the important special problems that must be dealt with is that of sugar exports. Sugar cane production is both a political and an economic problem. Production of sugar is protected to some extent by the quota system and the tariff. If restrictions should be generally lowered, Puerto Rico would lose part of its market since sugar can be more cheaply produced by Cuba,

the Philippines and Hawaii in the order named.

Coffee, tobacco, and cotton also have production and marketing problems. Increased attention needs to be given to stimulation of demand for the crops both locally and abroad as well as to improved varieties and practices in production. Particular attention, say the authors, needs to be given to substitute crops for coffee, including special hill crops such as quinine, grapes, bamboos resistant to termites, plants which bear essential oils, and insecticides, for example, lemon groves and bay for oil and derris for rotenone. Improved citrus varieties and promising fiber plants need to be planted on a wider scale.

Luxuriant forest growth, usually associated with tropical countries, does not exist in Puerto Rico. Pressure of population has left only poor land areas in forests. Forest production could be improved. There is considerable demand for wood for charcoal, for stakes and posts, crate material, for lumber for tool handles, wooden parts for vehicles and machinery and building and furniture.

There is a great deficiency in data as to minerals. However, it appears likely that mining can absorb only a small proportion of the population.

This report renders a distinct service in that it not only furnishes an analysis of the problems but in addition suggests some specific solutions which appear feasible to put into action over a reasonable period of time.

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Division of Land Economics, U.S.D.A.*

Index to

THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

VOLUME XX

February, 1944–November, 1944

LEADING ARTICLES

- BONBRIGHT, JAMES C. The NARUC Depreciation Report: A Symposium—The Depreciation Reserve as a Measure of Actual Accrued Depreciation 98–99
- BROOK, WARNER F. The German TVA 217–222
- CLEMENS, E. W. Ratemaking Policies and Practices of the Wisconsin Public Service Commission 223–237
- COLBERT, ASSEL R. The NARUC Depreciation Report: A Symposium—A Review of Certain Conclusions 89–97
- CONKLIN, HOWARD E. The Rural-Urban Economy of the Elmira-Corning Region 3–19
- DILLARD, DUDLEY. Big Inch Pipe Lines and the Monopoly Competition in the Petroleum Industry 109–122
- ENGLAND, ROBERT. Soldier Settlement: Revising the Oldest Rehabilitation Prospectus 285–298
- FOLWEILER, A. D. The Political Economy of Forest Conservation in the United States 202–216
- GOODMAN, A. BRISTOL. Western Movement of Local Government 20–34
- HESELSTINE, WILLIAM B. Regions, Classes and Sections in American History 35–44
- HOLDEN, ARTHUR C. The Technique of Urban Redevelopment:
Part I. Individual vs. Group Interests in Real Property 133–148
- Part II. Combination and Large-Scale Initiative In Real Estate 238–251
- HURLBURT, VIRGIL L. Some Aspects of Administrative Pricing as Related to Land Economics Research 123–132
- MAYER, HAROLD M. Localization of Railway Facilities in Metropolitan Centers as Typified by Chicago 299–315
- RATCLIFF, RICHARD U. A Land Economist Looks at City Planning 106–108
- READY, LESTER S. The NARUC Depreciation Report: A Symposium—The Unsoundness of Recommendation Forty-Two 100–105
- SELBY, H. E. Indirect Benefits from Irrigation Development 45–51
- SMITH, T. LYNN. Land Tenure in Brazil 194–201
- WARD, RALPH E. Adjusting Wheat Acreage in the Northern Great Plains to Wartime Demand 344–360
- WEAVER, ROBERT C. Race Restrictive Housing Covenants 183–193
- WEITZELL, E. C. Economics of Soil Conservation: II. Farm Business Adjustments 330–343
- WESTERFIELD, RAY B. Amortization of Mortgage Premiums 316–329

REPORTS AND COMMENTS

- Challenge of Agrarpolitik, The 252–255
- Characteristics of Former and Present Farm Owners 52–55
- Creed of a Great Public Servant, The 361–364
- Excess Profits Tax Relief for the Electric Utilities Under Section 722 of the Internal Revenue Code 149–156
- Farms and Homes for Veterans 371–373
- Incremental Cost Price: A Comment 58–60
- Incremental Cost Price: A Further Comment 60–63
- Mapping Chicago's Industrial and Commercial Land Use 365–370
- Neglected Factor in Estimating Housing Demand, A 264–270
- Notes on the Recent Decline in Home Ownership 373–377
- Post-War Planning for Yorkville: IV. Toward Post-War Housing 156–163
- Property Tax as a Burden on Shelter 255–263
- Public Utility Financing:
In the Fourth Quarter of 1943 and a Summary of the Year 66–71
- In the First Quarter of 1944 163–165
- In the Second Quarter of 1944 278–280
- In the Third Quarter of 1944 378–380
- Recent Utility Activities 63–66
- Soldier Settlement in Agriculture 270–278
- Yellowstone's Conception Rethought 55–58

BOOK REVIEWS

- ALEXANDER, DONALD CRICHTON. *The Arkansas Plantation 1920–1942* 84
- ALLEN, HAROLD B. *Come Over Into Macedonia* 169
- BAIN, JOE S. *The Economics of the Pacific Coast Petroleum Industry Part 1: Market Structure* 281
- BAKER, RALPH HILLIS. *The National Bituminous Coal Commission* 72
- BASCH, ANTONIN. *The Danubian Basin and the German Economic Sphere* 79
- BATEMAN, ALAN M. *Economic Mineral Deposits* 83
- BECK, FRANK VICTOR. *The Field Seed Industry in the United States* 385
- BERRY, THOMAS SENIOR. *Western Prices Before 1861* 76
- BLACK, JOHN D. *Food Enough* 284
- BRADY, ROBERT A. *Business as a System of Power* 85
- BROWN, RALPH H. *Mirror for Americans—Likeness of the Eastern Seaboard, 1810* 73
- BUTTRICK, P. L. *Forest Economics and Finance* 81
- CHARLES LATHROP PACK FORESTRY FOUNDATION. *Woodland Opportunities on Dairy Farms in New York* 281
- DAVIS, JOSEPH S. *Food as an Implement of War: The Responsibilities of the Farmers* 166
- FREYN, HUBERT. *Free China's New Deal* 284
- GATES, PAUL WALLACE. *The Wisconsin Pine Lands of Cornell University* 171
- HORN, STANLEY F. *This Fascinating Lumber Business* 177
- HOWARD, JOSEPH KINSEY. *Montana—High, Wide and Handsome* 180

INDEX

391

- KIZER, BENJAMIN H. *The U. S.—Canadian Northwest*... 77
 LEAGUE OF NATIONS. *Agricultural Production in Continental Europe During the 1914-1918 War and the Reconstruction Period*... 176
 LOWDERMILK, WALTER CLAY. *Palestine, Land of Promise*... 384
 MAY, GEORGE O. *Financial Accounting*... 382
 MORGAN, ARTHUR E. *The Small Community*... 74
 MORTON, WALTER A. *British Finance, 1930-1940*... 175
 MUELDER, H. R. AND DELO, D. M. *Years of This Land*... 174
 NATIONAL INSTITUTE OF MUNICIPAL OFFICERS. (*Year-book*) *Municipalities and the Law in Action*... 173
 NATIONAL RESOURCES PLANNING BOARD. *A Development Plan for Puerto Rico*... 387
 OLSON, PAUL R. AND HICKMAN, C. ADDISON. *Pan-American Economics*... 283
 PEARSON, FRANK A. AND PAARLBERG, DON. *Food*... 168
 PRENTICE, E. PARMELEE. *Food, War and the Future*... 282
 RECORD, SAMUEL J. AND HESS, ROBERT W. *Timbers of the New World*... 85
 RHYNE, CHARLES S. *Airports and the Courts*... 383
 ROBERTS, WARREN A. *State Taxation of Metallic Deposits*... 386
 ROCKEFELLER, DAVID. *Unused Resources and Economic Waste*... 174
 SMITH, ROY J. *The California State Land Settlements at Durham and Delhi*... 170
 SYMPOSIUM: TAX INSTITUTE. *Wartime Problems of State and Local Finance*... 168
 TAYLOR, HENRY C. AND ANNE DEWEES. *World Trade in Agricultural Products*... 77
 VAN DERSAL, WILLIAM R. *The American Land: Its History and Its Uses*... 179
 VAN SICKLE, JOHN V. *Planning for the South*... 81
 VIOLICH, FRANCIS. *Cities of Latin America*... 381
 WARING, P. ALSTON AND TELLER, WALTER MAGNUS. *Roots in the Earth*... 178
 WICKIZER, V. D. *THE WORLD COFFEE ECONOMY*... 78
 WILMERDING, JR., LUCIUS. *The Spending Power*... 166
 WOOD, FREDERICK L. W. *Understanding New Zealand*... 383

SUBJECT MATTER

- A**
 Agrarpolitik, The Challenge of... 252-255
 Agriculture
 see Land, rural
- B**
 Big Inch Pipe Lines... 109-122
 Brazil, Land tenure in... 194-201
 farm tenancy... 196
 property rights, nature and evolution of... 194
- C**
 Canada, Veterans' Land Act of 1942... 295-298
 Central Valley Project (California)
 statistics relating to irrigation benefits... 50- 51
 Chicago Plan Commission
 mapping industrial and commercial land use... 365-370
 memorandum on negro population... 187
 railway patterns and localization of facilities... 299-315
 City planning
 see Land, urban
- E**
 Eastman, Joseph B., notes on creed of... 361-364
 Elmira-Corning Region rural-urban economy... 3- 19
- F**
 Federal Communications Commission
 Western Union-Postal Telegraph integration... 65- 66
 Federal Power Commission
 comparative utility rate studies... 232
 financial statistics on depreciation reserves... 95
 Hope Natural Gas Company case... 63, 90, 97
 Natural Gas Pipeline Company case... 97
 system of accounts concerning depreciation... 100-102
 Finance
 excess profits tax relief for electric utilities... 149-156
 Federal Power Commission
 financial statistics on depreciation reserves... 95
 system of accounts concerning depreciation... 100-102
 incremental cost, utility prices
 public *vs.* private ownership of public utilities... 58- 63
 NARUC Depreciation Report: A Symposium... 89- 97
 public utility financing, 1943, 1944... 66, 163, 278, 378
 ratemaking policies of Wisconsin Public Service Commission... 223-237
- Forest conservation
 Clarke-McNary Law... 206-214
 Forestry Service... 206-216
 Joint Congressional Committee report... 213
 legislative history... 202-216
 review of progress made... 202-216
 Yellowstone, notes on... 55- 58
- G**
 Germany
 Agrarpolitik, the challenge of... 252-255
 German TVA, the... 217-222
 legal setup of Rhine-Ruhr Authority... 221
 Rhineland-Westphalia industrial background... 217-221
 Germany's agricultural adjustment... 252-254
 Government
 major systems of local government... 21
 regionalism, effect of... 35- 44
 westward movement of local government... 20- 24
- H**
 Housing
 estimating housing demand... 264-270
 race restrictive housing covenants... 183-193
 Chicago Plan Commission memorandum on... 187
 negro occupancy and property values... 189-192
 residential property tax *vs.* sales tax... 255-263
 technique of urban redevelopment... 133-148, 238-251
 Yorkville, post-war planning... 156-163
 see also Land, urban
- I**
 Incremental cost, utility prices
 public *vs.* private ownership of public utilities... 58-63
 Interstate Commerce Commission
 Petroleum Rail Shippers v. Alton & Southern Railroad, et al.... 114
 petroleum, transportation of... 109, 112-116
 Irrigation, indirect benefits of... 45- 51
- L**
 Land, general
 administrative pricing relating to land economics... 123-132
 Brazil, land tenure in... 194-201
 forest conservation progress... 202-216
 regionalism in United States... 35- 44
 rural-urban economy of Elmira-Corning Region... 3- 19

- Uthwatt Commission Report..... 238
 Land Grant College studies..... 128
 Land, rural
 Agrarpolitik, the challenge of..... 252-255
 farm owners, characteristics of former and present 52- 55
 forest conservation, political economy of..... 202-216
 Germany's agricultural adjustment..... 252-255
 irrigation, indirect benefits of..... 45- 51
 local government, westward movement of..... 20- 34
 soil conservation, farm business adjustment to..... 330-343
 soldier settlement in agriculture..... 270-278
 revising the oldest rehabilitation prospectus..... 285-298
 state's interest and responsibility..... 271-272
 Wisconsin Report of 1944, The..... 270-278
 Wheat acreage adjustment to wartime demands..... 344-360
 Land, urban
 city planning by a land economist..... 106-108
 decline in home ownership, notes on..... 373-377
 estimating housing demand..... 264-270
 mapping Chicago's land use..... 365-370
 race restrictive housing covenants..... 183-193
 Chicago Plan Commission memorandum on..... 187
 negro occupancy and property values..... 189-192
 technique or urban redevelopment..... 133-148, 238-251
 diagrammatic analyses..... 140-145
 individual *vs.* group interests..... 133-148
 Land Utilization Committee proposals..... 238-239
 Rockefeller Center development..... 242-244
 Yorkville, post-war planning for..... 156-163
 see also Housing
 Legislation
 Section 722 of Internal Revenue Code
 excess profits tax relief for electric utilities..... 149-156
 petroleum anti-monopoly laws..... 113-117
 progress in forest conservation..... 202-216
 rural local government, evolution of..... 20- 34
 urban redevelopment, regulation of..... 133-136
 M
 Mineral resources
 see Oil
 Mortgage financing
 amortization of premiums..... 316-329
 distribution of loans by type of lender..... 323
 home ownership, notes on decline in..... 373-377
 N
 NARUC Depreciation Report: a symposium
 Depreciation reserve as a measure of actual
 accrued depreciation..... 98-100
 Review of certain conclusions of..... 89- 97
 Unsoundness of Recommendation Forty-Two..... 100-105
 Negro housing in Chicago..... 186-192
 New York Redevelopment Companies Law of 1943
 138, 156, 161-163
 O
 Oil
 Big Inch Pipe Lines..... 109-122
 T.N.E.C. investigations..... 109-112
 Oklahoma
 analysis of former and present farm owners..... 52- 55
 P
 Planning
 see Land, urban
 Postal Telegraph-Western Union integration..... 65- 66
 Public Service Commission of Wisconsin
 ratemaking policies and practices..... 223-237
 Public utilities
 electrical competition in Seattle, Washington..... 64- 65
 excess profits tax relief for electric utilities..... 149-156
 financing, last quarter and summary of 1943,
 3 quarters 1944..... 66, 163, 278, 378
 German TVA, the..... 217-222
 Hope Natural Gas Company case..... 63, 90, 97
 incremental cost, utility prices..... 58- 63
 NARUC Depreciation Report: a symposium..... 89- 97
 Postal Telegraph-Western Union integration..... 65- 66
 Puget Sound Power and Light Company com-
 petition..... 64- 65
 Wisconsin Public Service Commission rate-
 making policies..... 223-237
 R
 Real Estate
 see Land, urban
 Regionalism in the United States..... 35- 44
 Rockefeller Center development..... 242-244
 S
 Soil conservation, economics of farm business
 adjustments to..... 330-343
 Soldier settlement
 Comparison of Canadian and United States'
 laws, 1944..... 287-298
 Farms and homes for veterans of World War II..... 371-373
 Wisconsin plan for Veterans of World War II..... 270-278
 T
 Taxation
 excess profits tax relief for electric utilities under
 Section 722 of Internal Revenue Code..... 149-156
 property tax as a burden on shelter..... 255-263
 Temporary National Economic Commission
 petroleum monopoly-competition..... 109-112
 Tenure, land
 agricultural adjustment problems..... 252-255
 farm owners, characteristics of former and present. 52- 55
 land tenure in Brazil..... 194-201
 soldier settlement in agriculture..... 270-278
 Transportation
 localization of railway facilities as typified by
 Chicago..... 299-315
 U
 Urban land
 see Land, urban
 Uthwatt Commission Report..... 238
 W
 Western Union-Postal Telegraph integration..... 65- 66
 Wisconsin Public Service Commission
 ratemaking policies and practices..... 223-237
 Wisconsin Report, The
 soldier settlement in agriculture..... 270-278
 Y
 Yellowstone's conception rethought..... 55- 58
 Yorkville, post-war planning for..... 156-163

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS
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Of *Journal of Land & Public Utility Economics* published quarterly at Madison, Wisconsin for November 1944.
State of Wisconsin, County of Dane.

Before me, a notary public in and for the State and county aforesaid, personally appeared Mary E. Amend, who, having been duly sworn according to law, deposes and says that she is the Managing Editor of the *Journal of Land & Public Utility Economics* and that the following is, to the best of her knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

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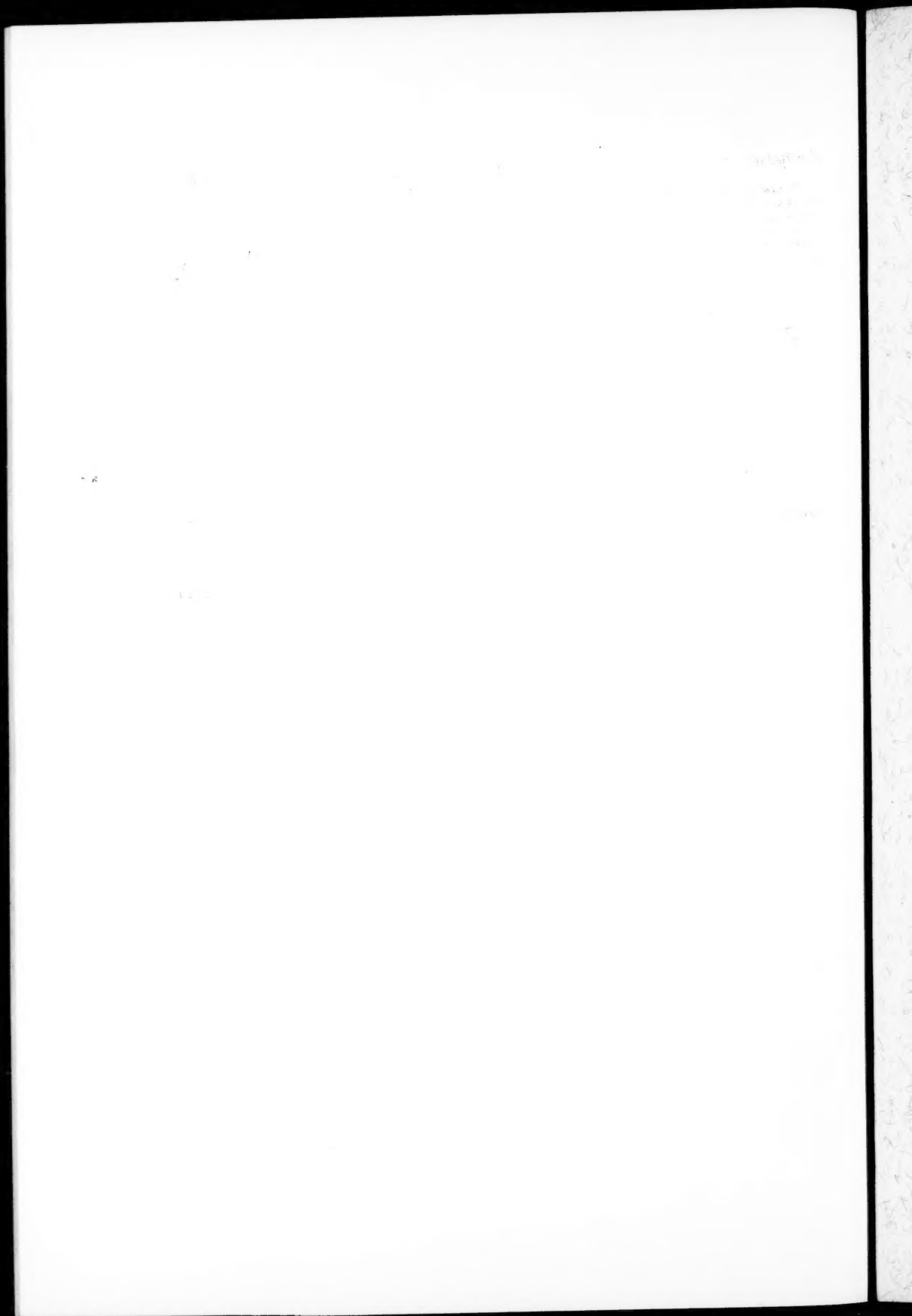
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FOUNDED IN 1892. Published quarterly: March, June, September, December. Subscription \$3.50 per year. Canadian postage, 16 cents; foreign postage, 40 cents. Single copies, \$1.00.

The University of Chicago Press - 5750 Ellis Ave., Chicago 37, Ill.

AMERICAN ECONOMIC REVIEW

Contents

Volume XXXIV

December, 1944

Taxation Policies

Treasury Tax Policies in 1943	E. D. Allen
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